*APPENDIX G*

# Data Validation Reports

*APPENDIX G-1*

# Trace Volatiles

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300 Fax: (510) 412-2304*

*MEMORANDUM*

*TO:* *Chris Lichens, Remedial Project Manager*
*Site Cleanup Section 4, SFD-7-4*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00105132*

*DATE:* *May 9, 2008*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *37203* |
| *SDG No.:* | *Y3WK7* |
| *Laboratory:* | *Mitkem Laboratories (MITKEM)* |
| *Analysis:* | *Trace Volatiles* |
| *Samples:* | *20 Groundwater Samples (see Case Summary)* |
| *Collection Date:* | *February 28 and 29, 2008 and March 3, 2008* |
| *Reviewer:* | *Kendra DeSantolo, ESAT/Laboratory Data Consultants* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

*cc:* *Jennie Han-Liu, CLP PO USEPA Region 1*
*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*

*Case No.:* *37203*
*SDG No.:* *Y3WK7*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories*
*Reviewer:* *Kendra DeSantolo, ESAT/LDC*
*Date:* *May 9, 2008*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y3WK7 through Y3WM6* |
| *Concentration and Matrix:* | *Low/Medium Concentration Water* |
| *Analysis:* | *Trace Volatiles* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *February 28 and 29, 2008 and March 3, 2008* |
| *Sample Receipt Date:* | *February 29, 2008 and March 1 and 4, 2008* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *March 5, 6, 7, and 10, 2008* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Y3WM6* |
| *Equipment Blanks (EB):* | *Not provided* |
| *Trip Blank (TB):* | *Y3WL7* |
| *Background Samples (BG):* | *Not provided* |
| *Field Duplicates (D1):* | *Y3WL2 and Y3WL3* |
| *Field Duplicates (D2):* | *Y3WM4 and Y3WM5* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *VBLK5T:* | *Y3WK7, Y3WK8, Y3WL1 through Y3WL3, Y3WL5, and Y3WL6* |
| *VBLK5U:* | *Y3WK7DL, Y3WK8DL, Y3WK9, Y3WL0, Y3WL1DL, Y3WL2DL, Y3WL3DL, Y3WL4, Y3WL5DL, Y3WL6DL, and Y3WL7* |
| *VBLK5W:* | *Y3WL8, Y3WL9, Y3WM0, Y3WM1, Y3WM3, Y3WM3MS, Y3WM3MSD, Y3WM4, Y3WM5, and Y3WM6* |
| *VBLK5X:* | *Y3WM2* |
| *VBLKB5:* | *Y3WM4DL and Y3WM5DL* |
| *VBLKC5:* | *storage blank VHBLKC5* |

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*
*2: Calibration Summary*

## CLP PO Action

*None.*

*CLP PO Attention*

1. Detected results for some analytes are qualified as nondetected and estimated (U,J) due to method blank and field blank contamination (see Comment B).

2. Results for some analytes are qualified as estimated (J) due to calibration problems (see Comments C and D).

3. Results for some analytes are qualified as estimated (J) due to deuterated monitoring compound (DMC) recovery problems (see Comment E).

4. Detected result for trans-1,2-dichloroethene in sample Y3WK7 is qualified as estimated (J) due to concentration exceeding calibration range (see Comment F).

Sampling Issues

*Detected results for chloroform in samples Y3WM3, Y3WM4, and Y3WM5 are qualified as nondetected and estimated (U,J) due to field blank contamination (see Comment B).*

## Additional Comments

*Other than a laboratory artifact (approximate retention time of 7.1 minutes), tentatively identified compounds (TICs) were found in samples Y3WK8 and Y3WL9 (see attached Form 1Js).*

*This report was prepared in accordance with the following documents:*

- ESAT Region 9 Standard Operating Procedure 901, *Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages*;

- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration,* SOM01.1, May 2005;

- *Modifications Updating SOM01.1 to SOM01.2,* Amended April 11, 2007; and

- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, July 2007.

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 1. | *Holding Time/Preservation* | *Yes* | |
| 2. | *GC/MS Tune/GC Performance* | *Yes* | |
| 3. | *Initial Calibration* | *No* | *C* |
| 4. | *Continuing Calibration Verification* | *No* | *C, D* |
| 5. | *Laboratory Blanks* | *No* | *B* |
| 6. | *Field Blanks* | *Yes* | |
| 7. | *Deuterated Monitoring Compounds* | *No* | *E* |
| 8. | *Matrix Spike/Matrix Spike Duplicate* | *No* | *G* |
| 9. | *Laboratory Control Sample/Duplicate* | *N/A* | |
| 10. | *Internal Standards* | *Yes* | |
| 11. | *Compound Identification* | *Yes* | |
| 12. | COMPOUND QUANTITATION | YES | A, F, H |
| 13. | SYSTEM PERFORMANCE | YES | |
| 14. | *Field Duplicate Sample Analysis* | *Yes* | |

*N/A = Not Applicable*

## III. Validity AND Comments

A. *The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- All detected results below the contract required quantitation limits

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

B. *The following results are qualified as nondetected and estimated due to method blank and field blank contamination and are flagged "U,J" in Table 1A.*

- Methylene chloride in field blank Y3WM6
- Chloroform in samples Y3WM3 through Y3WM5

*Methylene chloride was found in method blanks VBLK5W and VBLK5X and chloroform was found in field blank Y3WM6 (see Table 1A for concentrations). Results for the samples listed above are considered nondetected and estimated (U,J) and quantitation limits have been raised according to blank qualification rules presented below.*

*No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result and reported as nondetected. If the sample result is less than the CRQL, the result is reported as nondetected at the CRQL.*

*A laboratory method blank is laboratory reagent water or baked sand analyzed with all reagents, deuterated monitoring compounds, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.*

*A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.*

C. *Results for the following analytes are qualified as estimated due to low RRFs in initial calibration and continuing calibration verifications (CCVs) and are flagged "J" in Table 1A.*

- *Acetone and 1,2-dibromo-3-chloropropane in all samples, all method blanks, and storage blank VHBLKC5*
- *2-Butanone in samples Y3WK9, Y3WL0, Y3WL4, and Y3WL7 through Y3WM6; method blanks VBLK5U, VBLK5W, VBLK5X, VBLKB5, and VBLKC5; and storage blank VHBLKC5*

*An average RRF of 0.026 was reported for acetone in the initial calibration. RRFs were below the 0.05 validation criterion for acetone, 2-butanone, and 1,2-dibromo-3-chloropropane in CCVs (see Table 2).*

*Detected results for the analytes listed above may be biased low and should be considered as the minimum concentrations at which these analytes are present in the samples. Where results are nondetected, false negatives may exist.*

*DMCs 2-butanone-d5 and 2-hexanone-d5 also had RRFs below the 0.05 validation criterion in the initial calibration and CCVs (see Table 2). Quantitation of the analytes associated with these DMCs may have been affected by low RRFs (see attached Table 9 from the Functional Guidelines).*

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

*D. Results for the following analyte are qualified as estimated due to large percent difference (%D) in the CCV and are flagged "J" in Table 1A.*

- *1,1-Dichloroethene in samples Y3WK7, Y3WK8, Y3WL1 through Y3WL3, Y3WL5, and Y3WL6 and method blank VBLK5T*

*The %D exceeded the ±30.0% validation criterion for 1,1-dichloroethene in the 03/05/08 CCV (see Table 2).*
*The DMC 1,1-dichloroethene-d2 also had %Ds that exceeded the ±30.0% validation criterion in CCVs. Quantitation of the analytes associated with this DMC may have been affected by high %Ds (see attached Table 9 from the Functional Guidelines).*

*The continuing calibration checks the instrument performance daily and produces the relative response factors (RRFs) for target analytes that are used for quantitation.*

*E. Results for the following analytes are qualified as estimated due to DMC recoveries outside QC limits and are flagged "J" in Table 1A.*

*{Chloroethane-d5}*
- Dichlorodifluoromethane, chloromethane, bromomethane, chloroethane, and carbon disulfide in samples Y3WK7, Y3WL2, and Y3WL9

*{1,1-Dichloroethene-d2}*
- trans-1,2-Dichloroethene and cis-1,2-dichloroethene in samples Y3WK7, Y3WK8, Y3WL1, and Y3WL2
- cis-1,2-Dichloroethene in sample Y3WL3
- 1,1-Dichloroethene and cis-1,2-dichloroethene in samples Y3WL6, Y3WM4, and Y3WM5

*DMC recoveries outside QC limits are shown below.*

| *Sample* | *DMC* | *% Recovery* | *QC Limit* |
|---|---|---|---|
| *Y3WK7* | *Chloroethane-d5* | *71* | *71-131* |
| *Y3WL2* | *Chloroethane-d5* | *67* | *71-131* |
| *Y3WL9* | *Chloroethane-d5* | *69* | *71-131* |
| *Y3WK7* | *1,1-Dichloroethene-d2* | *2302* | *55-104* |
| *Y3WK8* | *1,1-Dichloroethene-d2* | *1017* | *55-104* |
| *Y3WL1* | *1,1-Dichloroethene-d2* | *278* | *55-104* |
| *Y3WL2* | *1,1-Dichloroethene-d2* | *217* | *55-104* |
| *Y3WL3* | *1,1-Dichloroethene-d2* | *219* | *55-104* |
| *Y3WL6* | *1,1-Dichloroethene-d2* | *166* | *55-104* |
| *Y3WM3MS* | *1,1-Dichloroethene-d2* | *139* | *55-104* |
| *Y3WM3MSD* | *1,1-Dichloroethene-d2* | *144* | *55-104* |
| *Y3WM4* | *1,1-Dichloroethene-d2* | *182* | *55-104* |
| *Y3WM5* | *1,1-Dichloroethene-d2* | *210* | *55-104* |
| *Y3WK7* | *Chloroform-d* | *170* | *78-121* |
| *Y3WK8* | *Chloroform-d* | *125* | *78-121* |

*Detected results for affected analytes where DMC recoveries fell below QC limits may be biased low; where results are nondetected, false negatives may exist. Detected results for affected analytes where DMC recoveries exceeded QC limits may be biased high. For DMC recoveries that exceeded QC limits, only detected results for associated analytes are qualified. The very high recoveries for DMC 1,1-dichloroethene-d2 in samples Y3WK7 and Y3WK8 are due to high concentrations of 1,1-dichloroethene present in samples. Recoveries for the DMC chloroform-d exceeded QC limits but detected results for chloroform were reported from the dilutions. The samples were not reanalyzed.*

*Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.*

F. *Detected result for the following analyte is qualified as estimated due to concentration exceeding the calibration range and is flagged "J" in Table 1A.*

- *trans-1,2-Dichloroethene in sample Y3WK7*

*The concentration of trans-1,2-dichloroethene in sample Y3WK7 was 56 μg/L. This value exceeds the 0.5-20 μg/L calibration range. The laboratory reanalyzed sample Y3WK7 at a 80-fold dilution but trans-1,2-dichloroethene was diluted out (40U).*

*The result reported in Table 1A for trans-1,2-dichloroethene in sample Y3WK7 is from the undiluted analysis. This concentration is considered to be qualitatively acceptable but quantitatively questionable and should be considered as the minimum concentration at which the analyte is present in sample.*

G. *The matrix spike/matrix spike duplicate relative percent difference (RPD) for benzene (13%) in QC samples Y3WM3MS and Y3WM3MSD did not meet the criterion for precision (≤11%) specified in the SOW.*

*Results obtained may indicate poor laboratory technique or matrix effects which may interfere with analysis. The effect on data quality is not known.*

*Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.*

H. Samples Y3WK7 and Y3WK8 were reanalyzed at 80-fold and 20-fold dilutions, respectively, due to high levels of trichlorofluoromethane, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoromethane, chloroform, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y3WK7 and Y3WK8 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Sample Y3WL1 was reanalyzed at a 10-fold dilution due to high levels of trichlorofluoromethane, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoromethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y3WL1 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Samples Y3WL2 and Y3WL3 were reanalyzed at 10-fold dilutions due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoromethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y3WL2 and Y3WL3 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Sample Y3WL5 was reanalyzed at a 4-fold dilution due to a high level of trichloroethene that exceeded the calibration range. The result for trichloroethene in sample Y3WL5 is reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Samples Y3WL6, Y3WM4, and Y3WM5 were reanalyzed at 8-, 4-, and 4-fold dilutions, respectively, due to high levels of trichloroethene and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y3WL6, Y3WM4, and Y3WM5 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

***TABLE 1B***

***DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW***

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," January 2005.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*Table 2*
*Calibration Summary*

*Case No.:* *37203*
*SDG No.:* *Y3WK7*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories*
*Reviewer:* *Kendra DeSantolo, ESAT/LDC*
*Date:* *May 9, 2008*

*RELATIVE RESPONSE FACTORS (RRF)*

| | | RRF | RRF | RRF | RRF | RRF |
|---|---|---|---|---|---|---|
| *Analysis date:* | | *2/29/08* | *3/05/08* | *3/05/08* | *3/06/08* | *3/06/08* |
| *Analysis time:* | | *21:00-* | *06:20* | *17:54* | *05:21* | *17:09* |
| *GC/MS I.D.:* | | *V5* | *V5* | *V5* | *V5* | *V5* |
| *Analyte* | | *Init.* | *Cont.* | *Cont.* | *Cont.* | *Cont.* |
| *Acetone* | | *0.026* | *0.021* | *0.021* | *0.020* | *0.020* |
| *2-Butanone* | | *------* | *------* | *-----* | *0.042* | *0.048* |
| *1,2-dibromo-3-chloropropane* | | *0.034* | *0.034* | *0.030* | *0.026* | *0.038* |
| *2-Butanone-d5* | | *------* | *------* | *------* | *0.049* | *------* |
| *2-Hexanone-d5* | *0.047* | *0.048* | *------* | *0.041* | *------* | |

| | | RRF | RRF | RRF | RRF | RRF |
|---|---|---|---|---|---|---|
| *Analysis date:* | | *3/07/08* | *3/07/08* | *3/10/08* | *3/10/08* | *3/11/08* |
| *Analysis time:* | | *04:01* | *15:34* | *9:53* | *21:30* | *08:53* |
| *GC/MS I.D.:* | | *V5* | *V5* | *V5* | *V5* | *V5* |
| *Analyte* | | *Cont.* | *Cont.* | *Cont.* | *Cont.* | *Cont.* |
| *Acetone* | | *0.017* | *0.020* | *0.029* | *0.017* | *0.019* |
| *2-Butanone* | | *0.041* | *0.046* | *------* | *0.036* | *0.048* |
| *1,2-dibromo-3-chloropropane* | | *0.032* | *0.034* | *0.038* | *0.030* | *0.033* |
| *2-Butanone-d5* | | *0.044* | *------* | *------* | *0.043* | *------* |
| *2-Hexanone-d5* | *0.037* | *0.046* | *0.044* | *0.038* | *0.045* | |

*PERCENT DIFFERENCES (%D)*

| | | %D | %D |
|---|---|---|---|
| *Analysis date:* | | *3/05/08* | *3/10/08* |
| *Analysis time:* | | *06:20* | *09:53* |
| *GC/MS I.D.:* | | *V5* | *V5* |
| *Analyte* | | *Cont.* | *Cont.* |
| *1,1-Dichloroethene* | *+38.6* | *-----* | |
| *2-Butanone-d5* | | *+36.9* | *+32.2* |

*ASSOCIATED SAMPLES AND METHOD BLANKS*

*Initial 02/29/08: All samples, method blanks, and storage blank VHBLKC5*
*Cont., 03/05/08 (06:20): Y3WK7, Y3WK8, Y3WL1 through Y3WL3, Y3WL5, and Y3WL6 and VBLK5T*
*Cont., 03/05/08 (17:54): Closing standard for Y3WK7, Y3WK8, Y3WL1 THROUGH Y3WL3, Y3WL5, Y3WL6 and VBLK5T; opening standard for Y3WK7DL, Y3WK8DL, Y3WK9, Y3WL0, Y3WL1DL, Y3WL2DL, Y3WL3DL, Y3WL4, Y3WL5DL, Y3WL6DL, Y3WL7 and VBLK5U*
*Cont., 03/06/08 (05:21): Closing standard for Y3WK7DL, Y3WK8DL, Y3WK9, Y3WL0, Y3WL1DL, Y3WL2DL, Y3WL3DL, Y3WL4, Y3WL5DL, Y3WL6DL, Y3WL7 and VBLK5U*
*Cont., 03/06/08 (17:09): Y3WL8, Y3WL9, Y3WM0, Y3WM1, Y3WM3, Y3WM3MS, Y3WM3MSD, Y3WM4, Y3WM5, Y3WM6, and VBLK5W*
*Cont., 03/07/08 (04:01): Closing standard for Y3WL8, Y3WL9, Y3WM0, Y3WM1, Y3WM3, Y3WM3MS, Y3WM3MSD, Y3WM4, Y3WM5, Y3WM6, and VBLK5W; opening standard for Y3WM2 and VBLK5X*
*Cont., 03/07/08 (15:34): Closing standard for Y3WM2 and VBLK5X*
*Cont., 03/10/08 (09:53):Y3WM4DL, Y3WM5DL, and VBLKB5*
*Cont., 03/10/08 (21:30): Closing standard for Y3WM4DL, Y3WM5DL, and VBLKB5; opening standard for storage blank VHBLKC5 and VBLKC5*
*Cont., 03/11/08 (08:53): Closing standard for storage blank VHBLKC5 and VBLKC5.*

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300 Fax: (510) 412-2304*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405051*

*DATE:* *May 4, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38274* |
| *SDG No.:* | *Y4N51* |
| *Laboratory:* | *Mitkem Laboratories (MITKEM)* |
| *Analysis:* | *Trace Volatiles* |
| *Samples:* | *20 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *March 2 through 5, 2009* |
| *Reviewer:* | *April Martinez, ESAT/Laboratory Data Consultants* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

*cc:* *Jennie Han-Liu, CLP PO USEPA Region 1*
*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*

*Case No.:* *38274*
*SDG No.:* *Y4N51*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories (MITKEM)*
*Reviewer:* *April Martinez, ESAT/LDC*
*Date:* *May 4, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y4N51 through Y4N53, Y4N55 through Y4N70, and Y4N73* |
| *Concentration and Matrix:* | *Low/Medium Concentration Water* |
| *Analysis:* | *Trace Volatiles* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *March 2 through 5, 2009* |
| *Sample Receipt Date:* | *March 3 through 6, 2009* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *March 5, 9, 10, 12, and 13, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Y4N63, Y4N67, and Y4N79 (in SDG Y4N71)* |
| *Equipment Blanks (EB):* | *Not provided* |
| *Trip Blank (TB):* | *Not provided* |
| *Background Samples (BG):* | *Not provided* |
| *Field Duplicates (D1):* | *Y4N60 and Y4N61* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *VBLK5Q:* | *Y4N51, Y4N52* |
| *VBLK5S:* | *Y4N53, Y4N55, Y4N56* |
| *VBLK5T:* | *Y4N57 through Y4N70* |
| *VBLK5U:* | *Y4N73, Y4N73MS, and Y4N73MSD* |
| *VBLKB5:* | *Y4N57DL through Y4N62DL, Y4N65DL, Y4N66DL, Y4N68DL through Y4N70DL, Y4N73DL* |
| *VBLKC5:* | *Y4N64DL and storage blank VHBLKC5* |

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*
*2: Calibration Summary*

### CLP PO Action

*None.*

*CLP PO Attention*

5. Detected results for chloroform in samples Y4N57 through Y4N62 and Y4N66 are qualified as nondetected and estimated (U,J) due to field blank contamination (see Comment B).

6. Results for some analytes are qualified as estimated (J) due to calibration problems (see Comments C and D).

7. Results for some analytes are qualified as estimated (J) due to deuterated monitoring compound (DMC) recovery problems (see Comment E).

8. Results for some analytes in samples Y4N57, Y4N58, Y4N59, Y4N61, Y4N64, and Y4N66 are qualified as estimated (J) due to internal standard (IS) area problems (see Comment F).

Sampling Issues

*Detected results for chloroform in samples Y4N57 through Y4N62 and Y4N66 are qualified as nondetected and estimated (U,J) due to field blank contamination (see Comment B).*

## Additional Comments

*Other than a laboratory artifact (approximate retention time of 6.9 minutes), tentatively identified compounds (TICs) were found in samples Y4N57, Y4N64, Y4N68, Y4N70, and Y4N73 (see attached Form 1Js).*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, July 2007.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 15. | *Holding Time/Preservation* | *Yes* | |
| 16. | *GC/MS Tune/GC Performance* | *Yes* | |
| 17. | *Initial Calibration* | *No* | *C* |
| 18. | *Continuing Calibration Verification* | *No* | *C, D* |
| 19. | *Laboratory Blanks* | *No* | *B* |
| 20. | *Field Blanks* | *No* | *B* |
| 21. | *Deuterated Monitoring Compounds* | *No* | *E* |
| 22. | *Matrix Spike/Matrix Spike Duplicate* | *No* | *G* |
| 23. | *Laboratory Control Sample/Duplicate* | *N/A* | |
| 24. | *Internal Standards* | *No* | *F* |
| 25. | *Compound Identification* | *Yes* | |
| 26. | COMPOUND QUANTITATION | YES | A, H, I |
| 27. | SYSTEM PERFORMANCE | YES | |
| 28. | *Field Duplicate Sample Analysis* | *Yes* | |

*N/A = Not Applicable*

## III. Validity AND Comments

A. *The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- *All detected results below the contract required quantitation limits*

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

B. *The following results are qualified as nondetected and estimated due to method blank and field blank contamination and are flagged "U,J" in Table 1A.*

- *Methylene chloride in storage blank VHBLKC5*
- *Chloroform in samples Y4N55, Y4N57 through Y4N62, Y4N66, and Y4N68*

*Methylene chloride was found in method blanks VBLK5S, VBLK5T, VBLK5U, and VBLKC5 and chloroform was found in field blanks Y4N63, Y4N67, and Y4N79 (see Table 1A for concentrations). Results for the samples listed above are considered nondetected and estimated (U,J) and quantitation limits have been raised according to blank qualification rules presented below.*

*No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result and reported as nondetected. If the sample result is less than the CRQL, the result is reported as nondetected at the CRQL.*

*A laboratory method blank is laboratory reagent water or baked sand analyzed with all reagents, deuterated monitoring compounds, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.*

*A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory-introduced contamination will be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.*

C. *Results for the following analyte are qualified as estimated due to low RRFs in initial calibration and continuing calibration verifications (CCVs) and are flagged "J" in Table 1A.*

- *2-Butanone in samples Y4N53, Y4N55 through Y4N70, and Y4N73 and method blanks VBLK5S, VBLK5T, and VBLK5U*

*RRFs were below the 0.05 validation criterion for 2-butanone in CCVs (see Table 2). Since results are nondetected, false negatives may exist.*

*DMCs 2-butanone-d5 and 2-hexanone-d5 also had RRFs below the 0.05 validation criterion in the initial calibration and CCVs (see Table 2). Quantitation of the analytes associated with these DMCs may have been affected by low RRFs (see attached Table 9 from the Functional Guidelines).*

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

D. *Results for the following analyte are qualified as estimated due to a large percent difference (%D) in the CCV and are flagged "J" in Table 1A.*

- *Bromomethane in method blank VBLKC5 and storage blank VHBLKC5*

*A %D of +31.6% was reported for bromomethane in the 03/13/09 09:03 CCV, which exceeded the ±30.0% validation criterion for opening CCVs.*

*The continuing calibration checks the instrument performance daily and produces the relative response factors (RRFs) for target analytes that are used for quantitation.*

E. *Results for the following analytes are qualified as estimated due to DMC recoveries outside QC limits and are flagged "J" in Table 1A.*

*{Chloroethane-d5}*

- *Dichlorodifluoromethane, chloromethane, bromomethane, chloroethane, and carbon disulfide in sample Y4N51*

*{1,1-Dichloroethene-d2}*

- *1,1-Dichloroethene and cis-1,2-dichloroethene in samples Y4N57 through Y4N62, Y4N66, Y4N69, and Y4N73*
- *1,1-Dichloroethene, trans-1,2-dichloroethene and cis-1,2-dichloroethene in samples Y4N64 and Y4N65*
- *1,1-Dichloroethene in samples Y4N68 and Y4N70*

{Chloroform-d}

- *1,1-Dichloroethane in sample Y4N64*

*{Benzene-d6}*

- *Benzene in sample Y4N64*

{Toluene-d8}

- *Trichloroethene in sample Y4N66*

DMC recoveries outside QC limits are shown below.

| *Sample* | *DMC* | *% Recovery* | *QC Limit* |
|---|---|---|---|
| *Y4N 57* | *Vinyl chloride-d3* | *140* | *65-131* |
| *Y4N 58* | *Vinyl chloride-d3* | *145* | *65-131* |
| *Y4N 59* | *Vinyl chloride-d3* | *138* | *65-131* |
| *Y4N 60* | *Vinyl chloride-d3* | *132* | *65-131* |
| *Y4N 61* | *Vinyl chloride-d3* | *135* | *65-131* |
| *Y4N 62* | *Vinyl chloride-d3* | *134* | *65-131* |
| *Y4N 63* | *Vinyl chloride-d3* | *144* | *65-131* |
| *Y4N 64* | *Vinyl chloride-d3* | *139* | *65-131* |
| *Y4N 65* | *Vinyl chloride-d3* | *132* | *65-131* |
| *Y4N 66* | *Vinyl chloride-d3* | *131* | *65-131* |
| *Y4N 67* | *Vinyl chloride-d3* | *133* | *65-131* |
| *Y4N 68* | *Vinyl chloride-d3* | *132* | *65-131* |
| *Y4N 69* | *Vinyl chloride-d3* | *139* | *65-131* |
| *Y4N 73* | *Vinyl chloride-d3* | *135* | *65-131* |
| *Y4N 73MSD* | *Vinyl chloride-d3* | *136* | *65-131* |
| *Y4N57DL* | *Vinyl chloride-d3* | *149* | *65-131* |
| *Y4N 58DL* | *Vinyl chloride-d3* | *157* | *65-131* |
| *Y4N59DL* | *Vinyl chloride-d3* | *155* | *65-131* |
| *Y4N 60DL* | *Vinyl chloride-d3* | *160* | *65-131* |
| *Y4N 61DL* | *Vinyl chloride-d3* | *161* | *65-131* |
| *Sample* | *DMC* | *% Recovery* | *QC Limit* |
| *Y4N 62DL* | *Vinyl chloride-d3* | *158* | *65-131* |
| *Y4N 65DL* | *Vinyl chloride-d3* | *171* | *65-131* |
| *Y4N 66DL* | *Vinyl chloride-d3* | *170* | *65-131* |
| *Y4N 68DL* | *Vinyl chloride-d3* | *170* | *65-131* |
| *Y4N 69DL* | *Vinyl chloride-d3* | *172* | *65-131* |
| *Y4N 70DL* | *Vinyl chloride-d3* | *168* | *65-131* |
| *Y4N 73DL* | *Vinyl chloride-d3* | *159* | *65-131* |
| *Y4N 64DL* | *Vinyl chloride-d3* | *172* | *65-131* |
| *Y4N51* | *Chloroethane-d5* | *65* | *71-131* |
| *Y4N51* | *1,1-Dichloroethene-d2* | *106* | *55-104* |
| *Y4N52* | *1,1-Dichloroethene-d2* | *109* | *55-104* |
| *Y4N57* | *1,1-Dichloroethene-d2* | *116* | *55-104* |

| | | | | |
|---|---|---|---|---|
| *Y4N58* | *1,1-Dichloroethene-d2* | | *132* | *55-104* |
| *Y4N59* | *1,1-Dichloroethene-d2* | | *120* | *55-104* |
| *Y4N60* | *1,1-Dichloroethene-d2* | | *118* | *55-104* |
| *Y4N61* | *1,1-Dichloroethene-d2* | | *112* | *55-104* |
| *Y4N62* | *1,1-Dichloroethene-d2* | | *127* | *55-104* |
| *Y4N63* | *1,1-Dichloroethene-d2* | | *121* | *55-104* |
| *Y4N64* | *1,1-Dichloroethene-d2* | | *113* | *55-104* |
| *Y4N65* | *1,1-Dichloroethene-d2* | | *117* | *55-104* |
| *Y4N66* | *1,1-Dichloroethene-d2* | | *124* | *55-104* |
| *Y4N67* | *1,1-Dichloroethene-d2* | | *117* | *55-104* |
| *Y4N68* | *1,1-Dichloroethene-d2* | | *128* | *55-104* |
| *Y4N69* | *1,1-Dichloroethene-d2* | | *120* | *55-104* |
| *Y4N 73* | *1,1-Dichloroethene-d2* | | *129* | *55-104* |
| *Y4N 73MS* | *1,1-Dichloroethene-d2* | | *122* | *55-104* |
| *Y4N 73MSD* | *1,1-Dichloroethene-d2* | | *129* | *55-104* |
| *Y4N 58DL* | *1,1-Dichloroethene-d2* | | *112* | *55-104* |
| *Y4N 59DL* | *1,1-Dichloroethene-d2* | | *108* | *55-104* |
| *Y4N60DL* | *1,1-Dichloroethene-d2* | *112* | *55-104* | |
| *Y4N61DL* | *1,1-Dichloroethene-d2* | *117* | *55-104* | |
| *Y4N62DL* | *1,1-Dichloroethene-d2* | *114* | *55-104* | |
| *Y4N65DL* | *1,1-Dichloroethene-d2* | *115* | *55-104* | |
| *Y4N66DL* | *1,1-Dichloroethene-d2* | *117* | *55-104* | |
| *Y4N68DL* | *1,1-Dichloroethene-d2* | *122* | *55-104* | |
| *Y4N69DL* | *1,1-Dichloroethene-d2* | *123* | *55-104* | |
| *Y4N70DL* | *1,1-Dichloroethene-d2* | *122* | *55-104* | |
| *Y4N73DL* | *1,1-Dichloroethene-d2* | *113* | *55-104* | |
| *Y4N64DL* | *1,1-Dichloroethene-d2* | *131* | *55-104* | |
| *Y4N64* | *Chloroform-d* | | *125* | *78-121* |
| *Y4N58* | *Benzene-d6* | | *129* | *77-124* |
| *Y4N62* | *Benzene-d6* | | *129* | *77-124* |
| *Y4N64* | *Benzene-d6* | | *231* | *77-124* |
| *Y4N65* | *Benzene-d6* | | *143* | *77-124* |
| *Y4N66* | *Benzene-d6* | | *131* | *77-124* |
| *Y4N70* | *Benzene-d6* | | *135* | *77-124* |

| *Sample* | *DMC* | *% Recovery* | *QC Limit* |
|---|---|---|---|
| *Y4N73* | *Benzene-d6* | *124* | *77-124* |
| *Y4N64* | *1,2-Dichloropropane-d6* | *156* | *79-124* |
| *Y4N64* | *Toluene-d8* | *195* | *77-121* |
| *Y4N65* | *Toluene-d8* | *123* | *77-121* |
| *Y4N66* | *Toluene-d8* | *126* | *77-121* |
| *Y4N70* | *Toluene-d8* | *122* | *77-121* |
| *Y4N64* | *trans-1,3-Dichloropropene-d4* | *153* | *73-121* |
| *Y4N64* | *1,1,2,2-Trichloroethane-d2* | *128* | *73-125* |

*Detected results for affected analytes where DMC recoveries fell below QC limits may be biased low; where results are nondetected, false negatives may exist. Detected results for affected analytes where DMC recoveries exceeded QC limits may be biased high. For DMC recoveries that exceeded QC limits, only detected results for associated analytes are qualified. Recoveries for DMCs vinyl chloride-d3, 1,2-dichloropropane-d6, trans-1,3-dichloropropene-d4, and 1,1,2,2-tetrachloroethane-d2 exceeded QC limits but associated sample results were not qualified because they were nondetects. The samples were not reanalyzed undiluted.*

*Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.*

F. Results for the following analytes are qualified as estimated due to low internal standard (IS) areas and are flagged "J" in Table 1A.

- *All analytes except trichloroethene in sample Y4N58*
- *All analytes except tetrachloroethene in sample Y4N59*

{Chlorobenzene-d5}

- *1,1,1-Trichloroethane, cyclohexane, carbon tetrachloride, benzene, , methylcyclohexane, 1,2-dichloropropane, bromodichloromethane, cis-1,3-dichloropropane, 4-methyl-2-pentanone, toluene, trans-1,3-dichloropropene, 1,1,2-trichloroethane, 2-hexanone, dibromochloromethane, 1,2-dibromoethane, chlorobenzene, ethylbenzene, o-xylene, m,p-xylenes, styrene, isopropylbenzene, and 1,1,2,2-tetrachloroethane in sample Y4N64*

{1,4-Dichlorobenzene-d4}

- *Bromoform, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2,4-trichlorobenzene, and 1,2,3-trichlorobenzene in samples Y4N57, Y4N61, Y4N64, and Y4N66*

IS areas outside QC limits are shown below.

| Sample | Internal Standard | Area | QC Limit |
|---|---|---|---|
| Y4N57 | 1,4-Dichlorobenzene-$d_4$ | 37738 | 44804-104544 |
| Y4N58 | 1,4-Dichlorobenzene-$d_4$ | 32311 | 44804-104544 |
| Y4N58 | 1,4-Difluorobenzene | 149475 | 154276-359978 |
| Y4N58 | Chlorobenzene-d5 | 86241 | 100090-233542 |
| Y4N59 | 1,4-Dichlorobenzene-d4 | 31822 | 44804-104544 |
| Y4N59 | 1,4-Difluorobenzene | 149179 | 154276-359978 |
| Y4N59 | Chlorobenzene-d5 | 84195 | 100090-233542 |
| Y4N61 | 1,4-Dichlorobenzene-d4 | 43896 | 44804-104544 |
| Y4N64 | 1,4-Dichlorobenzene-d4 | 36159 | 44804-104544 |
| Y4N64 | Chlorobenzene-d5 | 55034 | 100090-233542 |
| Y4N66 | 1,4-Dichlorobenzene-d4 | 40644 | 44804-104544 |

Detected results and quantitation limits for the affected analytes are considered quantitatively questionable. Where results are nondetected, false negatives may exist. The samples were not reanalyzed undiluted.

*Internal standards, introduced into every calibration standard, blank, sample, and QC sample, monitor changes in analyte response due to matrix effects and fluctuations in instrument sensitivity throughout the analytical sequence. Internal standards are used to quantitate the concentration of target analytes and surrogate standards.*

G. *The matrix spike/matrix spike duplicate percent recoveries for trichloroethene in QC samples Y4N73MS (140%) and Y4N73MSD (132%) did not meet the criterion for accuracy (71-120%) specified in the SOW. These recoveries are not meaningful because the concentration of trichloroethene in sample Y4N73 (68 ug/L) is significantly higher than the spike concentration of 5.0 ug/L.*

*Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.*

H. Sample Y4N57 was reanalyzed at a 4-fold dilution due to high levels of trichloroethene and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4N57 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Samples Y4N58, Y4N69, and Y4N73 were reanalyzed at 8-, 5-, and 5-fold dilutions, respectively, due to high levels of trichloroethene that exceeded the calibration range. Results for trichloroethene in samples Y4N58, Y4N69, and Y4N73 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Samples Y4N59, Y4N60, Y4N61, Y4N62, and Y4N66 were reanalyzed at 5-, 2-, 4-, 10-, and 10-fold dilutions, respectively, due to high levels of tetrachloroethene that exceeded the calibration range. Results for tetrachloroethene in samples Y4N59, Y4N60, Y4N61, Y4N62, and Y4N66 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Sample Y4N64 was reanalyzed at an 80-fold dilution due to high levels of trichlorofluoromethane, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, cis-1,2-dichloroethene, chloroform, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4N64 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Sample Y4N65 was reanalyzed at a 25-fold dilution due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4N65 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Sample Y4N68 was reanalyzed at a 2-fold dilution due to high levels of 1,1,2-trichloro-1,2,2-trifluoroethane and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4N68 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Sample Y4N70 was reanalyzed at a 20-fold dilution due to high levels of trichlorofluoromethane, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4N70 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

I. Data users should note that the diluted concentrations for tetrachloroethene in the following samples are significantly lower than the undiluted concentrations.

| *Sample* | *Analyte* | *Undiluted Conc., µg/L* | *Diluted Conc., µg/L* |
|---|---|---|---|
| *Y4N60* | *Tetrachloroethene* | *28* | *15* |
| *Y4N64* | *Tetrachloroethene* | *1800* | *1000* |
| *Y4N65* | *Tetrachloroethene* | *200* | *130* |
| *Y4N66* | *Tetrachloroethene* | *120* | *78* |
| *Y4N68* | *Tetrachloroethene* | *21* | *9* |
| *Y4N70* | *Tetrachloroethene* | *180* | *110* |

## *TABLE 1B*

## *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," January 2005.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*Table 2*
*Calibration Summary*

*Case No.:* *38274*
*SDG No.:* *Y4N51*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories*
*Reviewer:* *April Martinez, ESAT/LDC*
*Date:* *May 4, 2009*

*RELATIVE RESPONSE FACTORS (RRF)*

| | | RRF | RRF | RRF | RRF | RRF |
|---|---|---|---|---|---|---|
| *Analysis date:* | | *3/5/09* | *3/5/09* | *3/9/09* | *3/9/09* | *3/10/09* |
| *Analysis time:* | | *10:38-* | *21:02* | *10:09* | *21:10* | *09:06* |
| *GC/MS I.D.:* | | *V5* | *V5* | *V5* | *V5* | *V5* |
| *Analyte* | | *Init.* | *CCV* | *CCV* | *CCV* | *CCV* |
| *2-Butanone* | | *------* | *------* | *0.049* | *0.044* | *0.045* |
| *2-Butanone-d5* | | *0.044* | *0.038* | *0.043* | *0.039* | *0.038* |
| *2-Hexanone-d5* | *0.032* | *0.033* | *0.041* | *0.044* | *0.033* | |

| | | RRF | RRF |
|---|---|---|---|
| *Analysis date:* | | *3/12/09* | *3/10/09* |
| *Analysis time:* | | *18:30-* | *20:28* |
| *GC/MS I.D.:* | | *V5* | *V5* |
| *Analyte* | | *Init.* | *CCV* |
| *2-Butanone* | | *------* | *------* |
| *2-Butanone-d5* | | *------* | *0.044* |
| *2-Hexanone-d5* | *0.049* | *0.040* | |

*ASSOCIATED SAMPLES AND METHOD BLANKS*

*Initial 03/05/09: All samples and method blanks VBLK5Q, VBLK5S, VBLK5T, and VBLK5U*
*CCV, 03/05/09 (21:02):* *Y4N51, Y4N52, and VBLK5Q*
*CCV, 03/09/09 (10:09):* *Y4N53, Y4N55, Y4N56, and VBLK5S*
*CCV, 03/09/09 (21:10):* *Y4N53, Y4N55, Y4N56, and VBLK5S; Y4N57 throughY4N70 and VBLK5T*
*CCV, 03/10/09 (09:06):* *Y4N57 throughY4N70 and VBLK5T; Y4N73, Y4N73MS, Y4N73MSD, and VBLK5U*
*CCV, 03/10/09 (20:28):* *Y4N73, Y4N73MS, Y4N73MSD, and VBLK5U*
*Initial 03/05/09:* *Y4N57DL throughY4N70DL, Y4N73DL, VBLKB5, VBLKC5, and VHBLKC5*
*CCV, 03/13/09 (09:03):* *Y4N57DL throughY4N70DL, Y4N73DL, VBLKB5, VBLKC5, and VHBLKC5*

Table 9. Volatile Deuterated Monitoring Compounds (DMCs) and the Associated Target Compounds

| Chloroethane-$d_5$ (DMC) | 1,2-Dichloropropane-$d_6$ (DMC) | 1,2-Dichlorobenzene-$d_4$ (DMC) |
|---|---|---|
| Dichlorodifluoromethane | Cyclohexane | Chlorobenzene |
| Chloromethane | Methylcyclohexane | 1,3-Dichlorobenzene |
| Bromomethane | 1,2-Dichloropropane | 1,4-Dichlorobenzene |
| Chloroethane | Bromodichloromethane | 1,2-Dichlorobenzene |
| Carbon disulfide | | 1,2,4-Trichlorobenzene |
| | | 1,2,3-Trichlorobenzene |
| trans-1,3-Dichloropropene-d4 (DMC) | Chloroform-d (DMC) | 2-Hexanone-$d_5$ (DMC) |
| cis-1,3-Dichloropropene | 1,1-Dichloroethane | 4-Methyl-2-pentanone |
| trans-1,3-Dichloropropene | Bromochloromethane | 2-Hexanone |
| 1,1,2-Trichloroethane | Chloroform | |
| | Dibromochloromethane | |
| | Bromoform | |
| 2-Butanone-$d_5$ (DMC) | 1,1-Dichloroethene-$d_2$ (DMC) | 1,1,2,2-Tetrachloroethane-$d_2$ (DMC) |
| Acetone | trans-1,2-Dichloroethene | 1,1,2,2,-Tetrachlororethane |
| 2-Butanone | 1,1-Dichloroethene | 1,2-Dibromo-3-chloropropane |
| | cis-1,2-Dichloroethene | |
| Vinyl chloride-$d_3$ (DMC) | Benzene-$d_6$ (DMC) | Toluene-$d_8$ (DMC) |
| Vinyl chloride | Benzene | Trichloroethene |
| | | Toluene |
| | | Tetrachloroethene |
| | | Ethylbenzene |
| | | o-Xylene |
| | | m,p-Xylene |
| | | Styrene |
| | | Isopropylbenzene |
| 1,2-Dichloroethane-$d_4$ (DMC) | | |
| Trichlorofluoromethane | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | | |
| Methyl acetate | | |
| Methylene chloride | | |
| Methyl-tert-butyl ether | | |
| 1,1,1-Trichloroethane | | |
| Carbon tetrachloride | | |
| 1,2-Dibromoethane | | |
| 1,2-Dichloroethane | | |

## Data Review Results

*Modified by ESAT. Changes (*) are based on hardcopy Tier 1A forms review (of VOA_TRACE data only) and shown as ~~strikethrough~~ and **underline bold**. Reviewer: Santiago Lee (EPA Contract EPW06041, TDF 00405051, ICF International). Date: 05/11/09. DCN: 10724.*

* ***Results above calibration range, denoted by an "E" flag, are qualified J (estimated) in Amended Table 1A. Results from the diluted analyses should be used.***

**Data users should note that the diluted concentrations for some analytes in following samples are significantly lower than the undiluted concentrations.**

| Sample | Analyte | Undiluted Conc., µg/L | Diluted Conc., µg/L |
|---|---|---|---|
| Y4N71 | Tetrachloroethene | 210 | 120 |
| Y4N72 | Tetrachloroethene | 260 | 120 |
| Y4N76 | 1,1,1-Trichloroethane | 9100 | 820 |
| Y4N76 | Trichloroethene | 11000 | 2000U |
| Y4N76 | Tetrachloroethene | 79000 | 49000 |
| Y4N77 | Tetrachloroethene | 130 | 42 |
| Y4N81 | Trichloroethene | 120 | 47 |
| Y4N81 | Tetrachloroethene | 1800 | 540 |
| Y4N83 | Tetrachloroethene | 53 | 25 |

***Samples Y4N85, Y4N86, and Y4N87 were received by the laboratory with a cooler temperature of 7°C which exceeds the 4+2°C sample preservation criterion. Since the cooler temperature is below 10°C, no adverse effect on data quality is expected.***

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Blanks

| **Blanks** | **VOA_TRACE** |
|---|---|
| VTLB15 | The following trace volatile samples have common contaminant analyte concentrations reported greater than or equal to 4x the CRQL. The associated method blank has common contaminant analytes concentration is less than or equal to 2x the concentration criteria. Detected and nondetected compounds are not qualified. |
| | **Methylene chloride** Y4N76 |
| **Blanks** | **VOA_TRACE** |
| VTLB48 | The following trace volatile samples have common contaminant analyte concentrations reported greater than or equal to 4x the CRQL. The associated storage blank has common contaminant analytes concentration is less than or equal to 2x the concentration criteria. Detected and nondetected compounds are not qualified. |
| | **Methylene chloride** Y4N76 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Continuing Calibration Verification

| Continuing Calibration Verification | VOA_TRACE |
|---|---|
| VTC8 | The following trace volatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. |
| | VBLKC5, VBLKD5, Y4N71DL, Y4N72DL, Y4N74, Y4N75, Y4N76DL, Y4N77DL, Y4N78, Y4N79, Y4N80, Y4N82, Y4N83DL, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |
| | **Bromomethane** VSTD005C5, VSTD005D5 |
| | VBLKC5, VBLKD5, Y4N71DL, Y4N72DL, Y4N74, Y4N75, Y4N76DL, Y4N77DL, Y4N78, Y4N79, Y4N80, Y4N82, Y4N83DL, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

DMC/Surrogate

| DMC/Surrogate | VOA_TRACE |
|---|---|
| VTDSS2 | The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified. |
| | Y4N72, Y4N74, Y4N75, Y4N76, Y4N78, Y4N79, Y4N80, Y4N81, Y4N82, Y4N83, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |
| | **Benzene-d6** Y4N76, Y4N81 |
| | Benzene |
| | **Chloroethane-d5** Y4N76 |
| | Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane |
| | **Toluene-d8** Y4N76, Y4N81 |
| | Ethylbenzene, Isopropylbenzene, Styrene, Tetrachloroethene, Toluene, Trichloroethene, m,p-Xylene, o-Xylene |
| * | **1,1-Dichloroethene-d2** Y4N74, Y4N75, Y4N76, Y4N78, Y4N79, Y4N80, Y4N81, Y4N82, Y4N83, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91, **Y4N71DL, Y4N72DL, Y4N76DL, Y4N77DL, Y4N83DL** |
| | 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene |
| | **1,1,2,2-Tetrachloroethane-d2** Y4N81 |
| | 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane |
| | **2-Hexanone-d5** Y4N76 |
| | 2-Hexanone, 4-Methyl-2-pentanone |
| | **Vinyl chloride-d3** Y4N72, Y4N76, Y4N83, Y4N89 |
| | Vinyl chloride |
| | **Chloroform-d** Y4N76 |
| | 1,1-Dichloroethane, Bromochloromethane, Bromoform, Chloroform, Dibromochloromethane |
| | **trans-1,3-Dichloropropene-d4** Y4N76, Y4N81 |
| | 1,1,2-Trichloroethane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene |
| | **1,2-Dichloropropane-d6** Y4N76, Y4N81 |
| | 1,2-Dichloropropane, Bromodichloromethane, Cyclohexane, Methylcyclohexane |
| DMC/Surrogate | VOA_TRACE |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

DMC/Surrogate

| | |
|---|---|
| VTDSS3 | The following trace volatile samples have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ. |
| | Y4N76, Y4N77, Y4N78, Y4N82, Y4N89, Y4N90, Y4N91 |
| | **1,2-Dichloroethane-d4** Y4N77 |
| | 1,1,1-Trichloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,2-Dibromoethane, 1,2-Dichloroethane, Carbon tetrachloride, Methyl acetate, Methyl tert-butyl ether, Methylene chloride, Trichlorofluoromethane |
| * | **Chloroethane-d5** Y4N77, Y4N78, **Y4N72DL** |
| | Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane |
| * | **1,2-Dichlorobenzene-d4** Y4N78, Y4N82, Y4N89, Y4N90, Y4N91, **Y4N76DL, Y4N83DL** |
| | 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Chlorobenzene |
| | **1,1,2,2-Tetrachloroethane-d2** Y4N76 |
| | 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Detection Limit

| Detection Limit | VOA_TRACE |
|---|---|
| VTDL1 | The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J. Nondetected compounds are not qualified. |
| | VBLK5V, VBLKC5, VBLKD5, VHBLKG5, Y4N71, Y4N72, Y4N76DL, Y4N79, Y4N83, Y4N83DL, Y4N84, Y4N85, Y4N87, Y4N90 |
| | **Tetrachloroethene** Y4N87 |
| | **cis-1,2-Dichloroethene** Y4N85 |
| | **trans-1,2-Dichloroethene** Y4N72 |
| | **Methyl tert-butyl ether** Y4N71, Y4N72 |
| | **Chloroform** Y4N79, Y4N83DL, Y4N84 |
| | **1,1,1-Trichloroethane** Y4N76DL |
| | **Methylene chloride** VBLK5V, VBLKC5, VBLKD5, VHBLKG5 |
| | **1,1-Dichloroethane** Y4N71, Y4N72, Y4N83 |
| | **Trichloroethene** Y4N90 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Initial Calibration

| Initial Calibration | VOA_SIM |
|---|---|
| VTC15 | The following volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | VBLK5Y, VBLKJ5, VHBLKJ5, Y4N71, Y4N72, Y4N74, Y4N75, Y4N77, Y4N78, Y4N79, Y4N80, Y4N81, Y4N82, Y4N83, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |
| | **1,2-Dibromo-3-chloropropane** VSTD0.055X, VSTD0.05J5, VSTD0.15X, VSTD0.1J5, VSTD0.5J5, VSTD1.0J5, VSTD2.05X, VSTD2.0J5 |
| | VBLKJ5, VHBLKJ5, Y4N82, Y4N83, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |

*National Functional Guidelines Report # 3*

***Lab*** *MITKEM (Mitkem Corporation)* ***SDG*** *Y4N71* ***Case*** *38274* ***Contract*** *EPW05030* ***Region*** *9* ***DDTID*** *69891* ***SOW*** *SOM01.2*

## *Data Review Results*

*Internal Standard*

| ***Internal Standard*** | | ***VOA_TRACE*** |
|---|---|---|
| *VTIS3* | * | *The following volatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are* ~~***not qualified***~~ ***qualified J*** ***(Region 9 modification)****.* |
| | | ***1,4-Difluorobenzene*** *Y4N77* |
| ***Internal Standard*** | | ***VOA_TRACE*** |
| *VTIS31* | | *The following trace volatile samples have internal standard area counts that are outside the lower limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are qualified R.* |
| | * | ***Chlorobenzene-d5*** *Y4N76,* ~~***Y4N81***~~ |
| | * | ~~***1,4-Dichlorobenzene-d4 Y4N76***~~ |
| | * | ***The following trace volatile samples have internal standard area counts that are outside the lower limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are qualified J (area counts >25%; Region 9 modification).*** |
| | * | ***Chlorobenzene-d5 Y4N81*** |
| | * | ***1,4-Dichlorobenzene-d4 Y4N76*** |

## Data Review Results

Internal Standard

| TIC | VOA_TRACE |
|---|---|
| VTTIC1 | A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample Detected compounds are qualified NJ. Nondetected compounds are not qualified. |
| | **354-23-4** Y4N83 |
| **TIC** | **VOA_TRACE** |
| VTTIC2 | A library search indicates a match below 85% for a TIC compound in the trace volatile sample Detected compounds are qualified J. Nondetected compounds are not qualified. |
| | Y4N71, Y4N72, Y4N76 |
| | **Unknown-01** Y4N72, Y4N76 |
| | **Unknown-02** Y4N71, Y4N76 |
| | **Unknown-03** Y4N76 |
| | **Unknown-04** Y4N76 |
| | **Unknown-05** Y4N76 |

## Data Review Results

*Modified by ESAT. Changes (*) are based on hardcopy Tier 1A forms review (of VOA_TRACE data only) and shown as ~~strikethrough~~ and **underline bold**. Reviewer: Santiago Lee (EPA Contract EPW06041, TDF 00405051, ICF International). Date: 05/11/09. DCN: 10725.*

* ***Results above calibration range, denoted by an "E" flag, are qualified J (estimated) in Amended Table 1A. Results from the diluted analyses should be used.***

**Data users should note that the diluted concentrations for some analytes in following samples are significantly lower than the undiluted concentrations.**

| Sample | Analyte | Undiluted Conc., µg/L | Diluted Conc., µg/L |
|---|---|---|---|
| Y4NC4 | Trichlorofluoromethane | 31 | 14 |
| Y4NC4 | 1,1,2-Trichloro-1,2,2-trifluoromethane | 79 | 30 |
| Y4NC4 | Tetrachloroethene | 130 | 74 |
| Y4NC5 | Tetrachloroethene | 120 | 84 |

* ***The following results are qualified UJ or J (estimated) in Amended Table 1A due to low relative response factors (RRFs).***

- ***Acetone in samples Y4NC3, Y4NC2DL, Y4NC4DL, Y4NC5DL, and Y4NC6DL; method blanks VBLKN6 and VBLKS6; and storage blank VHBLKS6***
- ***2-Butanone in all samples, all method blanks, and storage blank VHBLKS6***
- ***1,2-Dibromo-3-chloropropane in samples Y4NB3DL, Y4NB4DL, Y4NC3, Y4NC2DL, Y4NC4DL, Y4NC5DL, and Y4NC6DL; method blanks VBLKW5, VBLKN6, and VBLKS6; and storage blank VHBLKS6***

***RRFs <0.05 and >0.01 were reported for acetone, 2-butanone, and 1,2-dibromo-3-chloropropane in initial calibrations and continuing calibration verifications (CCVs) (Region 9 modification). Since qualified results are nondetected, false negatives may exist.***

**The R-flags for dichlorodifluoromethane, chloromethane, bromomethane, chloroethane, and carbon disulfide in sample Y4NB3 are sustained since the recovery for DMC chloroethane-d5 is <20.0% (18%).**

***Lab*** *MITKEM (Mitkem Corporation)* ***SDG*** *Y4NB2* ***Case*** *38274* ***Contract*** *EPW05030* ***Region*** *9* ***DDTID*** *70218* ***SOW*** *SOM01.2*

## *Data Review Results*

*Blanks*

| ***Blanks*** | ***VOA_TRACE*** |
|---|---|
| *VTLB11* | *The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration is less than 2x the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.* |
| | ***Methylene chloride*** *Y4NC2DL, Y4NC3, Y4NC4DL, Y4NC5DL, Y4NC6DL* |
| ***Blanks*** | ***VOA_TRACE*** |
| *VTLB44* | *The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated storage blank has common contaminant analyte concentration is less than 2x the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL.* |
| | ***Methylene chloride*** *Y4NC2DL, Y4NC3, Y4NC4DL, Y4NC5DL, Y4NC6DL* |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

Continuing Calibration Verification

| **Continuing Calibration Verification** | **VOA_SIM** |
|---|---|
| VTC14 | The following trace volatile samples are associated with a CCV with relative response factors (RRF50) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | VBLK6J, VBLKM6, VHBLKM6, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC3, Y4NC4, Y4NC5, Y4NC6, Y4NC7 |
| | **1,2-Dibromo-3-chloropropane** VSTD0.56J, VSTD0.5M6 |
| | VBLK6J, VBLKM6, VHBLKM6, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC3, Y4NC4, Y4NC5, Y4NC6, Y4NC7 |
| **Continuing Calibration Verification** | **VOA_TRACE** |
| VTC8 | The following trace volatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. |
| | VBLKV5, VBLKW5, Y4NB2, Y4NB3, Y4NB3DL, Y4NB4, Y4NB4DL, Y4NB5, Y4NB6, Y4NB7, Y4NB8, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC4, Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD, Y4NC7 |
| | **Bromoform** VSTD005W5 |
| | VBLKW5, Y4NB3DL, Y4NB4DL |
| | **1,2,3-Trichlorobenzene** VSTD005V5 |
| | VBLKV5, Y4NB2, Y4NB3, Y4NB4, Y4NB5, Y4NB6, Y4NB7, Y4NB8, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC4, Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD, Y4NC7 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

DMC/Surrogate

| DMC/Surrogate | VOA_TRACE |
|---|---|
| VTDSS2 | The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified. |
| | Y4NB3, Y4NB4, Y4NB5, Y4NB6, Y4NC4, Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD |
| * | **1,1-Dichloroethene-d2** Y4NB3, Y4NB4, Y4NB6, Y4NC4, Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD, **Y4NC6DL** |
| | 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene |
| | **Chloroform-d** Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD |
| | 1,1-Dichloroethane, Bromochloromethane, Bromoform, Chloroform, Dibromochloromethane |
| | **trans-1,3-Dichloropropene-d4** Y4NB5, Y4NC6, Y4NC6MS, Y4NC6MSD |
| | 1,1,2-Trichloroethane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene |
| **DMC/Surrogate** | **VOA_TRACE** |
| VTDSS3 | The following trace volatile samples have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ. |
| | Y4NB2, Y4NB4, Y4NC0 |
| | **Chloroethane-d5** Y4NB2, Y4NB4 |
| | Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane |
| * | **1,1,2,2-Tetrachloroethane-d2** Y4NB2, Y4NC0, **Y4NB3DL** |
| | 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane |
| **DMC/Surrogate** | **VOA_TRACE** |
| VTDSS5 | The following trace volatile samples have DMC/SMC recoveries below the expanded lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | **Chloroethane-d5** Y4NB3 |
| | Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane |

*National Functional Guidelines Report # 3*

***Lab*** *MITKEM (Mitkem Corporation)* ***SDG*** *Y4NB2* ***Case*** *38274* ***Contract*** *EPW05030* ***Region*** *9* ***DDTID*** *70218* ***SOW*** *SOM01.2*

## *Data Review Results*

*Detection Limit*

| ***Detection Limit*** | ***VOA_TRACE*** |
|---|---|
| *VTDL1* | *The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J. Nondetected compounds are not qualified.* |
| | *VBLKN6, VBLKS6, Y4NB3DL, Y4NB4DL, Y4NC0, Y4NC1, Y4NC2, Y4NC2DL, Y4NC3, Y4NC4, Y4NC4DL, Y4NC5, Y4NC5DL, Y4NC6DL, Y4NC7* |
| | ***Tetrachloroethene*** *Y4NC0, Y4NC7* |
| | ***cis-1,2-Dichloroethene*** *Y4NB3DL, Y4NB4DL, Y4NC2, Y4NC2DL, Y4NC4DL, Y4NC5DL, Y4NC6DL* |
| | ***Chloroform*** *Y4NC2, Y4NC2DL* |
| | ***Methylene chloride*** *VBLKN6, VBLKS6, Y4NC2DL, Y4NC3* |
| | ***1,1-Dichloroethane*** *Y4NC4, Y4NC5* |
| | ***Trichloroethene*** *Y4NC0, Y4NC1* |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

Initial Calibration

| Initial Calibration | VOA_SIM |
|---|---|
| VTC15 | The following volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | VBLK6J, VBLKJ6, VBLKM6, VHBLKM6, Y4NB2, Y4NB3, Y4NB4, Y4NB5, Y4NB6, Y4NB7, Y4NB8, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC3, Y4NC4, Y4NC5, Y4NC6, Y4NC7 |
| | **1,2-Dibromo-3-chloropropane** VSTD0.05J6, VSTD0.1J6, VSTD0.5J6, VSTD1.0J6, VSTD2.0J6 |
| | VBLK6J, VBLKJ6, VBLKM6, VHBLKM6, Y4NB2, Y4NB3, Y4NB4, Y4NB5, Y4NB6, Y4NB7, Y4NB8, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC3, Y4NC4, Y4NC5, Y4NC6, Y4NC7 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

Matrix Spikes

| **Matrix Spikes** | **VOA_TRACE** |
|---|---|
| VTMS2 * | The relative percent difference (RPD) between the following volatile matrix spike and matrix spike duplicate recoveries is outside criteria. ~~Detected compounds are qualified J. Nondetected compounds are not qualified~~ **The RPDs for 1,1-dichloroethene and trichloroethene are not meaningful because sample concentrations (148 ug/L and 256, respectively) are much higher than the spike concentration of 5.0 ug/L**. |
| | **1,1-Dichloroethene** Y4NC6MS, Y4NC6MSD |
| | **Trichloroethene** Y4NC6MS, Y4NC6MSD |
| **Matrix Spikes** | **VOA_TRACE** |
| VTMS3 * | The following trace volatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. ~~Detected compounds are qualified J. Nondetected compounds are not qualified~~ **The recoveries for 1,1-dichloroethene and trichloroethene are not meaningful because sample concentrations (148 ug/L and 256, respectively) are much higher than the spike concentration of 5.0 ug/L**. |
| | **1,1-Dichloroethene** Y4NC6MS, Y4NC6MSD |
| | **Trichloroethene** Y4NC6MS, Y4NC6MSD |

| *TIC* | *VOA_TRACE* |
|---|---|
| *VTTIC2* | *A library search indicates a match below 85% for a TIC compound in the trace volatile sample  Detected compounds are qualified J. Nondetected compounds are not qualified.* |
| | ***Unknown-01*** *Y4NB6* |

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300 Fax: (510) 412-2304*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405058*

*DATE:* *June 2, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38275* |
| *SDG No.:* | *Y4Q41* |
| *Laboratory:* | *CompuChem (LIBRTY)* |
| *Analysis:* | *Trace Volatiles* |
| *Samples:* | *20 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *April 7, 2009* |
| *Reviewer:* | *April Martinez, ESAT/Laboratory Data Consultants* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

*cc:* *Cynthia Gurley, CLP PO USEPA Region 4*
*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*

*Case No.:* *38275*
*SDG No.:* *Y4Q41*
*Site:* *Omega Chem OU2*
*Laboratory:* *CompuChem (LIBRTY)*
*Reviewer:* *April Martinez, ESAT/LDC*
*Date:* *June 2, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y4Q41 through Y4Q60* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *Trace Volatiles* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *April 7, 2009* |
| *Sample Receipt Date:* | *April 8, 2009* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *April 16 and 17, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Y4Q62 and Y4Q68 (in SDG Y4Q61)* |
| *Equipment Blanks (EB):* | *Not provided* |
| *Trip Blank (TB):* | *Not provided* |
| *Background Samples (BG):* | *Not provided* |
| *Field Duplicates (D1):* | *Y4Q52 and Y4Q53* |
| *Field Duplicates (D2):* | *Y4Q55 and Y4Q56* |

### Laboratory QC

*Method Blanks & Associated Samples:*

*VBLKDP:Y4Q41 through Y4Q45*
*VBLKJL: Y4Q46 through Y4Q57*
*VBLKBG:Y4Q59DL and Y4Q60DL*
*VBLKDU:Y4Q41DL, Y4Q46DL through Y4Q57DL, Y4Q58, Y4Q59, Y4Q60*
*VBLKDW:Y4Q59MS, Y4Q59MSD*
*VBLKEA:storage blank VHBLKYA*

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*
*2: Calibration Summary*

*None.*

*CLP PO Attention*

9. Detected results for (1) acetone in samples Y4Q41 through Y4Q49 and Y4Q53 through Y4Q59 and (2) 2-butanone in sample Y4Q51 are qualified as nondetected and estimated (U,J) due to method blank, storage blank, and field blank contamination (see Comment B).

10. Results for some analytes are qualified as estimated (J) due to calibration problems (see Comments C and D).

11. Results for some analytes are qualified as estimated (J) due to deuterated monitoring compound (DMC) recovery problems (see Comment E).

Sampling Issues

*The detected result for 2-butanone in sample Y4Q51 is qualified as nondetected and estimated (U,J) due to field blank contamination (see Comment B).*

## Additional Comments

*Other than laboratory artifacts (approximate retention times of 11.4 and 13.5 minutes), tentatively identified compounds (TICs) were found in samples Y4Q41, Y4Q42, Y4Q46 through Y4Q52, Y4Q57, Y4Q59, and Y4Q60 (see attached Form 1Js).*

*The laboratory performed manual integrations on calibrations due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.*

*Standard preparation logs are not included in the data package and cannot be evaluated. This information was requested from the laboratory but has not been received to date. Data are not qualified in this report due to missing standard preparation logs.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*

- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*

- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*

- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 29. | *Holding Time/Preservation* | *Yes* | |
| 30. | *GC/MS Tune/GC Performance* | *Yes* | |
| 31. | *Initial Calibration* | *No* | *C* |
| 32. | *Continuing Calibration Verification* | *No* | *C, D* |
| 33. | *Laboratory Blanks* | *No* | *B* |
| 34. | *Field Blanks* | *No* | *B* |
| 35. | *Deuterated Monitoring Compounds* | *No* | *E* |
| 36. | *Matrix Spike/Matrix Spike Duplicate* | *No* | *G* |
| 37. | *Laboratory Control Sample/Duplicate* | *N/A* | |
| 38. | *Internal Standards* | *Yes* | |
| 39. | *Compound Identification* | *Yes* | |
| 40. | COMPOUND QUANTITATION | YES | A, H, I |
| 41. | SYSTEM PERFORMANCE | YES | |
| 42. | *Field Duplicate Sample Analysis* | *No* | *F* |

*N/A = Not Applicable*

## III. Validity AND Comments

*A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- *All detected results below the contract required quantitation limits*

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

*B. The following results are qualified as nondetected and estimated due to method blank, storage blank, and field blank contamination and are flagged "U,J" in Table 1A.*

- *Acetone in samples Y4Q41 through Y4Q49 and Y4Q55 through Y4Q59*
- *2-Butanone in sample Y4Q51*

*Acetone was found in method blanks VBLKDP, VBLKJL, and VBLKDU and storage blank VHBLKYA; 2-butanone was found in field blank Y4Q62 (see Table 1A for concentrations).*

*Results for the samples listed above are considered nondetected and estimated (U,J) and quantitation limits have been raised according to blank qualification rules presented below.* **6**

*No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result and reported as nondetected. If the sample result is less than the CRQL, the result is reported as nondetected at the CRQL.*

*A laboratory method blank is laboratory reagent water or baked sand analyzed with all reagents, deuterated monitoring compounds, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.*

*A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.*

*A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.*

C. *Results for the following analyte are qualified as estimated due to low RRFs in initial calibrations and continuing calibration verifications (CCVs) and are flagged "J" in Table 1A.*

- *Acetone in all samples, all method blanks, and storage blank VHBLKYA*

*RRFs were below the 0.05 validation criterion for acetone in initial calibrations and CCVs (see Table 2). Detected results for acetone should be considered as the minimum concentrations at which acetone is present in the samples. Where results are nondetected, false negatives may exist.*

*DMCs 2-butanone-d5 and 2-hexanone-d5 also had RRFs below the 0.05 validation criterion in the initial calibrations and CCVs (see Table 2). Quantitation of the analytes associated with these DMCs may have been affected by low RRFs (see attached Table 9 from the Functional Guidelines).*

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

D. *Results for the following analytes are qualified as estimated due to large percent differences (%Ds) in CCVs and are flagged "J" in Table 1A.*

- *Bromomethane in samples Y4Q46 throughY4Q57 and method blank VBLKJL*

- *1,2-Dibromo-3-chloropropane in method blank VBLKBG*

*%Ds of -37.3 % for bromomethane and -40.8 % for 1,2-dibromo-3-chloropropane were reported in 04/16/09 14:25 and 04/17/09 14:52 CCVs, respectively. These values exceeded the ±30.0% (bromomethane) and ±40.0% (1,2-dibromo-3-chloropropane) validation criterion for opening CCVs.*

*DMC 1,1-Dichloroethene-d2 also had a %D that exceeded the ±30.0% validation criterion in the 04/16/09 14:25 CCV. Quantitation of the analytes associated with this DMC may have been affected by the high %D (see attached Table 9 from the Functional Guidelines).*

*The continuing calibration verification checks satisfactory performance of the instrument on a day-to-day basis.*

*E. Results for the following analytes are qualified as estimated due to DMC recoveries outside QC limits and are flagged "J" in Table 1A.*

*{1,1-Dichloroethene-d2}*

- *cis-1,2-Dichloroethene in sample Y4Q44*
- *trans-1,2-Dichloroethene and cis-1,2-dichloroethene in samples Y4Q50, Y4Q51, Y4Q55, Y4Q56, and Y4Q59*
- *1,1-Dichloroethene and cis-1,2-dichloroethene in sample Y4Q53*
- *1,1-Dichloroethene, trans-1,2-dichloroethene and cis-1,2-dichloroethene in samples Y4Q46 through Y4Q49, Y4Q52, Y4Q54, Y4Q57, and Y4Q60*

{Chloroform-d}

- *1,1-Dichloroethane in sample Y4Q59*
- *1,1-Dichloroethane and chloroform in sample Y4Q60*

DMC recoveries outside QC limits are shown below.

| *Sample* | *DMC* | *% Recovery* | *QC Limit* |
|---|---|---|---|
| *Y4Q53DL* | *Chloroethane-d5* | *54* | *71-131* |
| *Y4Q54DL* | *Chloroethane-d5* | *66* | *71-131* |
| *Y4Q42* | *1,1-Dichloroethene-d2* | *107* | *55-104* |
| *Y4Q44* | *1,1-Dichloroethene-d2* | *109* | *55-104* |
| *Y4Q46* | *1,1-Dichloroethene-d2* | *848* | *55-104* |
| *Y4Q46DL* | *1,1-Dichloroethene-d2* | *118* | *55-104* |
| *Y4Q47* | *1,1-Dichloroethene-d2* | *1090* | *55-104* |
| *Y4Q47DL* | *1,1-Dichloroethene-d2* | *132* | *55-104* |
| *Y4Q48* | *1,1-Dichloroethene-d2* | *785* | *55-104* |
| *Y4Q48DL* | *1,1-Dichloroethene-d2* | *126* | *55-104* |
| *Y4Q49* | *1,1-Dichloroethene-d2* | *782* | *55-104* |
| *Y4Q49DL* | *1,1-Dichloroethene-d2* | *125* | *55-104* |
| *Y4Q50* | *1,1-Dichloroethene-d2* | *353* | *55-104* |
| *Y4Q51* | *1,1-Dichloroethene-d2* | *352* | *55-104* |
| *Sample* | *DMC* | *% Recovery* | *QC Limit* |
| *Y4Q52* | *1,1-Dichloroethene-d2* | *603* | *55-104* |

| | | | | |
|---|---|---|---|---|
| *Y4Q52DL* | *1,1-Dichloroethene-d2* | *119* | *55-104* | |
| *Y4Q53* | *1,1-Dichloroethene-d2* | | *507* | *55-104* |
| *Y4Q53DL* | *1,1-Dichloroethene-d2* | *120* | *55-104* | |
| *Y4Q54* | *1,1-Dichloroethene-d2* | | *471* | *55-104* |
| *Y4Q54DL* | *1,1-Dichloroethene-d2* | *120* | *55-104* | |
| *Y4Q55* | *1,1-Dichloroethene-d2* | | *273* | *55-104* |
| *Y4Q56* | *1,1-Dichloroethene-d2* | | *225* | *55-104* |
| *Y4Q57* | *1,1-Dichloroethene-d2* | | *468* | *55-104* |
| *Y4Q57DL* | *1,1-Dichloroethene-d2* | *118* | *55-104* | |
| *Y4Q59* | *1,1-Dichloroethene-d2* | | *704* | *55-104* |
| *Y4Q59MS* | *1,1-Dichloroethene-d2* | | *636* | *55-104* |
| *Y4Q59MSD* | *1,1-Dichloroethene-d2* | *624* | *55-104* | |
| *Y4Q60* | *1,1-Dichloroethene-d2* | | *386* | *55-104* |
| *Y4Q60DL* | *1,1-Dichloroethene-d2* | *133* | *55-104* | |
| *Y4Q59* | *Chloroform-d* | | *149* | *78-121* |
| *Y4Q59MS* | *Chloroform-d* | | *157* | *78-121* |
| *Y4Q59MSD* | *Chloroform-d* | | *156* | *78-121* |
| *Y4Q60* | *Chloroform-d* | | *126* | *78-121* |
| *Y4Q57DL* | *2-Hexanone-d5* | | *138* | *28-135* |

*Qualified results may be biased high. For DMC recoveries that exceeded QC limits, only detected results for associated analytes are qualified. The samples were not reanalyzed undiluted.*

*Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.*

*F. In the analysis of the field duplicate pair, the following outliers were reported.*

| *Analyte* | *Y4Q55 (D2) Conc., ug/L* | *Y4Q56 (D2) Conc., ug/L* | *RPD (<25%)* |
|---|---|---|---|
| *Trichlorofluoromethane* | *63* | *25* | *86* |
| *1,1-Dichloroethene* | *69* | *34* | *68* |
| *1,1,2-Trichloro-1,2,2-Trifluoroethane* | *170* | *79* | *73* |
| *Cyclohexane* | *1.7* | *0.40 J* | *N/A* |
| *Trichloroethene* | *250* | *140* | *56* |
| *Tetrachloroethene* | *110* | *63* | *54* |

*The effect on data quality is not known.*

*The analysis of field duplicate samples is a measure of both field and analytical precision. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix or poor sampling or laboratory technique.*

G. *The matrix spike and matrix spike duplicate (MS/MSD) recoveries for 1,1-dichloroethene and trichloroethene and relative percent difference (RPD) for 1,1-dichloroethene in QC samples Y4Q59MS and Y4Q59MSD did not meet the criteria for accuracy and precision specified in the SOW, as shown below.* **9**

| Analyte | Y4Q59MS % Recovery | Y4Q59MSD % Recovery | RPD | QC limits RPD | QC limits % Recovery | |
|---|---|---|---|---|---|---|
| 1,1-DICHLOROETHENE | -23 | 30 | 1488 | 14 | 61-145 | |
| TRICHLOROETHENE | -1257 | -1243 | ----- | --- | 71-120 | |

THE RECOVERIES AND RPD ARE NOT MEANINGFUL BECAUSE CONCENTRATIONS OF 1,1-DICHLOROETHENE (140 UG/L) AND TRICHLOROETHENE (220 UG/L) IN SAMPLE Y4Q59 ARE SIGNIFICANTLY HIGHER THAN THE SPIKE CONCENTRATION OF 5.0 UG/L.

*Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.*

H. Sample Y4Q41 was reanalyzed at a 1.7-fold dilution due to a high level of 1,2-dichloroethane that exceeded the calibration range. The result for 1,2-dichloroethane in sample Y4Q41 is reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Samples Y4Q46, Y4Q47, Y4Q48, and Y4Q49 were reanalyzed at a 25-, 25-, 16.7-, and 16.7-fold dilutions, respectively, due to high levels of 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y4Q46, Y4Q47, Y4Q48, and Y4Q49 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Samples Y4Q50, Y4Q51, Y4Q55, Y4Q56, Y4Q57, and Y4Q60 were reanalyzed at 16.7-, 16.7-, 25-, 25-, 16.7-, and 8.3-fold dilutions, respectively, due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y4Q50, Y4Q51, Y4Q55, Y4Q56, Y4Q57, and Y4Q60 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Samples Y4Q52 and Y4Q54 were reanalyzed at 12.5-fold dilutions due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y4Q52 and Y4Q54 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Sample Y4Q53 was reanalyzed at a 12.5-fold dilution due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, acetone, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4Q53 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Sample Y4Q59 was reanalyzed at a 41.7-fold dilution due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichlorofluoromethane, chloroform, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4Q59 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis. ***10***

I. Data users should note that the undiluted concentrations for trichloroethene and tetrachloroethene in the following samples are significantly higher than the diluted concentrations.

| *Sample* | *Analyte* | *Undiluted Conc., µg/L* | *Diluted Conc., µg/L* |
|---|---|---|---|
| *Y4Q51* | *Tetrachloroethene* | *130* | *97* |
| *Y4Q56* | *Trichloroethene* | *200* | *140* |
| *Y4Q56* | *Tetrachloroethene* | *110* | *63* |
| *Y4Q60* | *Trichloroethene* | *120* | *80* |

## TABLE 1B

### *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*Table 2*
*Calibration Summary*

*Case No.:* *38275*
*SDG No.:* *Y4Q41*
*Site:* *Omega Chem OU2*
*Laboratory:* *CompuChem*
*Reviewer:* *April Martinez, ESAT/LDC*
*Date:* *June 2, 2009*

*RELATIVE RESPONSE FACTORS (RRF)*

| | | RRF | RRF | RRF |
|---|---|---|---|---|
| *Analysis date:* | | *4/14/09* | *4/17/09* | *4/17/09* |
| *Analysis time:* | | *15:34-* | *14:52* | *20:09* |
| *GC/MS I.D.:* | | *5972hp73* | *5972hp73* | *5972hp73* |
| *Analyte* | | *Init.* | *CCV* | *CCV* |
| *Acetone* | | *0.045* | *0.037* | *0.045* |

| | | RRF | RRF | RRF | RRF |
|---|---|---|---|---|---|
| *Analysis date:* | | *4/16/09* | *4/16/09* | *4/17/09* | *4/17/09* |
| *Analysis time:* | | *04:45-* | *14:25* | *00:16* | *10:13* |
| *GC/MS I.D.:* | | *5973hp90* | *5973hp90* | *5973hp90* | *5973hp90* |
| *Analyte* | | *Init.* | *CCV* | *CCV* | *CCV* |
| *Acetone* | | *0.024* | *0.030* | *0.023* | *0.036* |
| *2-Butanone-d5* | | *-----* | *0.045* | *------* | *------* |
| *2-Hexanone-d5* | *0.040* | *0.041* | *------* | *0.049* | |

| | | RRF | RRF | RRF | RRF |
|---|---|---|---|---|---|
| *Analysis date:* | | *4/17/09* | *4/17/09* | *4/19/09* | *4/19/09* |
| *Analysis time:* | | *14:27-* | *22:10* | *14:10* | *16:12* |
| *GC/MS I.D.:* | | *5973hp90* | *5973hp90* | *5973hp90* | *5973hp90* |
| *Analyte* | | *Init.* | *CCV* | *CCV* | *CCV* |
| *Acetone* | | *0.041* | *0.023* | *0.035* | *0.042* |
| *2-Butanone-d5* | | *0.045* | *0.046* | *0.045* | *0.044* |
| *2-Hexanone-d5* | *0.034* | *0.042* | *0.036* | *0.039* | |

*ASSOCIATED SAMPLES AND METHOD BLANKS*

*Initial, 4/14/09: Samples Y4Q59DL and Y4Q60DL and method blank VBLKBG*
*CCV, 4/17/09 14:52 and 20:09:*
*Y4Q59DL and Y4Q60DL and VBLKBG*

*Initial, 4/16/09: Y4Q41 through Y4Q60, Y4Q41DL, Y4Q46DL through Y4Q57DL, VBLKDP, VBLKJL and VBLKDU*

*CCV, 4/16/09 14:25: Y4Q41 through Y4Q45, VBLKDP, and VBLKDP*

*CCV, 4/17/09 00:16:* *Y4Q46 through Y4Q57, Y4Q41DL, Y4Q46DL through Y4Q57DL, VBLKJL and VBLKDU* ***13***

*CCV, 4/17/09 10:13:* *Y4Q58 through Y4Q60, Y4Q41DL, Y4Q46DL through Y4Q57DL, and VBLKDU*

*Initial, 4/17/09:* *Y4Q59MS, Y4Q59MSD, VBLKDW, VBLKEA and VHBLKYA*

*CCV, 4/17/09 22:10:* *Y4Q59MS, Y4Q59MSD and VBLKDW*

*CCV, 4/19/09 14:10 and 16:12:*
*VBLKEA and VHBLKYA*

Table 9. Volatile Deuterated Monitoring Compounds (DMCs) and the Associated Target Compounds

| Chloroethane-$d_5$ (DMC) | 1,2-Dichloropropane-$d_6$ (DMC) | 1,2-Dichlorobenzene-$d_4$ (DMC) |
|---|---|---|
| Dichlorodifluoromethane | Cyclohexane | Chlorobenzene |
| Chloromethane | Methylcyclohexane | 1,3-Dichlorobenzene |
| Bromomethane | 1,2-Dichloropropane | 1,4-Dichlorobenzene |
| Chloroethane | Bromodichloromethane | 1,2-Dichlorobenzene |
| Carbon disulfide | | 1,2,4-Trichlorobenzene |
| | | 1,2,3-Trichlorobenzene |
| trans-1,3-Dichloropropene-d4 (DMC) | Chloroform-d (DMC) | 2-Hexanone-$d_5$ (DMC) |
| cis-1,3-Dichloropropene | 1,1-Dichloroethane | 4-Methyl-2-pentanone |
| trans-1,3-Dichloropropene | Bromochloromethane | 2-Hexanone |
| 1,1,2-Trichloroethane | Chloroform | |
| | Dibromochloromethane | |
| | Bromoform | |
| 2-Butanone-$d_5$ (DMC) | 1,1-Dichloroethene-$d_2$ (DMC) | 1,1,2,2-Tetrachloroethane-$d_2$ (DMC) |
| Acetone | trans-1,2-Dichloroethene | 1,1,2,2,-Tetrachlororethane |
| 2-Butanone | 1,1-Dichloroethene | 1,2-Dibromo-3-chloropropane |
| | cis-1,2-Dichloroethene | |
| Vinyl chloride-$d_3$ (DMC) | Benzene-$d_6$ (DMC) | Toluene-$d_8$ (DMC) |
| Vinyl chloride | Benzene | Trichloroethene |
| | | Toluene |
| | | Tetrachloroethene |
| | | Ethylbenzene |
| | | o-Xylene |
| | | m,p-Xylene |
| | | Styrene |
| | | Isopropylbenzene |
| 1,2-Dichloroethane-$d_4$ (DMC) | | |
| Trichlorofluoromethane | | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | | |
| Methyl acetate | | |
| Methylene chloride | | |
| Methyl-tert-butyl ether | | |
| 1,1,1-Trichloroethane | | |
| Carbon tetrachloride | | |
| 1,2-Dibromoethane | | |
| 1,2-Dichloroethane | | |

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300 Fax: (510) 412-2304*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405083*

*DATE:* *October 29, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38845* |
| *SDG No.:* | *Y4ZA6* |
| *Laboratory:* | *DataChem Laboratories, Inc. (DATAC)* |
| *Analysis:* | *Trace Volatiles* |
| *Samples:* | *20 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *September 1 through 3, 2009* |
| *Reviewer:* | *April Martinez, ESAT/Laboratory Data Consultants* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

*cc:* *Carol Beard, CLP PO USEPA Region 6*
*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*

*Case No.:* *38845*
*SDG No.:* *Y4ZA6*
*Site:* *Omega Chem OU2*
*Laboratory:* *DataChem Laboratories, Inc. (DATAC)*
*Reviewer:* *April Martinez, ESAT/LDC*
*Date:* *October 29, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y4ZA6 through Y4ZC5* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *Trace Volatiles* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *September 1 through 3, 2009* |
| *Sample Receipt Date:* | *September 3 and 4, 2009* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *September 8 through 10, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Y4ZA9 and Y4ZC5* |
| *Equipment Blanks (EB):* | *Not provided* |
| *Trip Blanks (TB):* | *Not provided* |
| *Background Samples (BG):* | *Not provided* |
| *Field Duplicates (D1):* | *Y4ZB7 and Y4ZB8* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *VBLKT1:* | *Y4ZA6, Y4ZA7, Y4ZA8, Y4ZB3, Y4ZB3MS, Y4ZB3MSD, Y4ZB3DL, Y4ZB5, Y4ZB6DL, Y4ZC0, Y4ZC4* |
| *VBLKT2:* | *Y4ZA9 through Y4ZB2, Y4ZB4, Y4ZB5DL, Y4ZB8DL through Y4ZC2DL* |
| *VBLKT3:* | *Y4ZB6 through Y4ZB9, Y4ZC1 through Y4ZC3, Y4ZC3DL, Y4ZC4DL, Y4ZC5; storage blank VHBLKT1* |

*Tables*

| | |
|---|---|
| *1A:* | *Analytical Results with Qualifications* |
| *1B:* | *Data Qualifier Definitions for Organic Data Review* |
| *2:* | *Calibration Summary* |

### CLP PO Action

*None.*

1. Detected results for (1) tetrachloroethene in samples Y4ZA6, Y4ZB1, Y4ZB4, and Y4ZC5 and (2) chloromethane in sample Y4ZB8 are qualified as nondetected and estimated (U,J) due to storage blank and field blank contamination (see Comment B).

2. Results for some analytes are qualified as estimated (J) due to low relative response factors (RRFs) in initial calibration and continuing calibration verifications (CCVs) (see Comment C).

3. Results for some analytes are qualified as estimated (J) due to high deuterated monitoring compound (DMC) recoveries (see Comment D).

Sampling Issues

1. *The detected result for chloromethane in sample Y4ZB8 is qualified as nondetected and estimated (U,J) due to a field blank contamination (see Comment B).*

2. *Samples Y4ZA6 through Y4ZB6 were received by the laboratory with a cooler temperature of 9°C, which exceeds the 4±2°C sample preservation criterion. Since the cooler temperature is below 10°C, no adverse effect on data quality is expected.*

3. *The laboratory indicated on sample log-in sheets that the cooler temperature indicator bottle was absent from four of the five coolers (refer to pages 672 through 676 in the data package).*

## Additional Comments

*In addition to laboratory artifacts (approximate retention times of 11.4, 18.3, and 21.0 minutes), tentatively identified compounds (TICs) were found in samples Y4ZB5, Y4ZB6, Y4ZB9, andY4ZC1 (see attached Form 1Js).*

*The laboratory performed manual integrations on calibrations and samples due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| *43.* | *Holding Time/Preservation* | *Yes* | |
| *44.* | *GC/MS Tune/GC Performance* | *Yes* | |
| *45.* | *Initial Calibration* | *No* | *C* |
| *46.* | *Continuing Calibration Verification* | *No* | *C* |
| *47.* | *Laboratory Blanks* | *No* | *B* |
| *48.* | *Field Blanks* | *No* | *B* |
| *49.* | *Deuterated Monitoring Compounds* | *No* | *D* |
| *50.* | *Matrix Spike/Matrix Spike Duplicate* | *Yes* | |
| *51.* | *Laboratory Control Sample/Duplicate* | *N/A* | |
| *52.* | *Internal Standards* | *Yes* | |
| *53.* | *Compound Identification* | *Yes* | |
| 54. | COMPOUND QUANTITATION | YES | A, E, F |
| 55. | SYSTEM PERFORMANCE | YES | |
| *56.* | *Field Duplicate Sample Analysis* | *Yes* | |

*N/A = Not Applicable*

## III. Validity AND Comments

*A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- *All detected results below the contract required quantitation limits*

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

*B. The following results are qualified as nondetected and estimated due to storage blank and field blank contamination and are flagged "U,J" in Table 1A.*

- *Tetrachloroethene in samples Y4ZA6, Y4ZB1, Y4ZB4, and Y4ZC5*
- *Chloromethane in sample Y4ZB8*

*Tetrachloroethene was found in storage blank VHBLKT1 and chloromethane was found in field blank Y4ZC5 (see Table 1A for concentrations). Results for the samples listed above*

*are considered nondetected and estimated (U,J) and quantitation limits have been raised according to blank qualification rules presented below.*

*No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result and reported as nondetected. If the sample result is less than the CRQL, the result is reported as nondetected at the CRQL.*

*A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.*

*A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.*

C. *Results for the following analytes are qualified as estimated due to low RRFs in initial calibration and CCVs and are flagged "J" in Table 1A.*

- *Acetone in all samples, all method blanks, and storage blank VHBLKT1*
- *2-Butanone in samples Y4ZA6, Y4ZA7, Y4ZA8, Y4ZB3, Y4ZB5, Y4ZC0, and Y4ZC4 and method blank VBLKT1*

*RRFs were below the 0.05 validation criterion for acetone in the initial calibration and CCVs and for 2-butanone in the CCVs (see Table 2). Detected results for acetone should be considered as the minimum concentrations at which it is present in the samples. Where results are nondetected, false negatives may exist.*

*DMCs 2-butanone-d5 and 2-hexanone-d5 also had RRFs below the 0.05 validation criterion in the CCVs (see Table 2). Quantitation of the analytes associated with these DMCs (acetone, 2-butanone, 4-methyl-2-pentanone, and 2-hexanone) may have been affected by low RRFs.*

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

D. *Detected results for the following analytes are qualified as estimated due to high DMC recoveries and are flagged "J" in Table 1A.*

*{1,1-Dichloroethene-d2}*
- *trans-1,2-Dichloroethene and cis-1,2-dichloroethene in samples Y4ZB5 and Y4ZB6*
- *1,1-Dichloroethene and cis-1,2-dichloroethene in samples Y4ZB7 and Y4ZC4*
- *1,1-Dichloroethene, trans-1,2-dichloroethene, and cis-1,2-dichloroethene in samples Y4ZB9 and Y4ZC1*

DMC recoveries outside QC limits are shown below.

| *Sample* | *DMC* | *% Recovery* | *QC Limit* |
|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| *Y4ZB5* | *1,1-Dichloroethene-d2* | | *335 55-104* | ***6*** |
| *Y4ZB6* | *1,1-Dichloroethene-d2* | | *278 55-104* | |
| *Y4ZB7* | *1,1-Dichloroethene-d2* | | *106 55-104* | |
| *Y4ZB9* | *1,1-Dichloroethene-d2* | | *473 55-104* | |
| *Y4ZB9DL* | *1,1-Dichloroethene-d2* | *114* | *55-104* | |
| *Y4ZC1* | *1,1-Dichloroethene-d2* | | *410 55-104* | |
| *Y4ZC1DL* | *1,1-Dichloroethene-d2* | *109* | *55-104* | |
| *Y4ZC4* | *1,1-Dichloroethene-d2* | | *112 55-104* | |

*Qualified results may be biased high. For DMC recoveries that exceeded QC limits, only detected results for associated analytes are qualified. The samples were not reanalyzed undiluted.*

*Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.*

E. Samples Y4ZB3, Y4ZC0, and Y4ZC4 were reanalyzed at 5-, 2-, and 5-fold dilutions, respectively, due to high levels of trichloroethene and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y4ZB3, Y4ZC0, and Y4ZC4 are reported from the diluted analyses in Table 1A; results for other analytes are reported from the undiluted analyses.

Samples Y4ZB5, Y4ZB9, and Y4ZC1 were reanalyzed at 40-, 50-, and 50-fold dilutions, respectively, due to high levels of trichlorofluoromethane, 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in samples Y4ZB5, Y4ZB9, and Y4ZC1 are reported from the 40-, 50-, and 50-fold diluted analyses in Table 1A; results for other analytes are reported from the 2-, 5-, and 5-fold diluted analyses.

Sample Y4ZB6 was reanalyzed at a 50-fold dilution due to high levels of 1,1-dichloroethene, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4ZB6 are reported from the 50-fold diluted analysis in Table 1A; results for other analytes are reported from the 5-fold diluted analysis.

Sample Y4ZB7 was reanalyzed at a 10-fold dilution due to high levels of 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethene, and tetrachloroethene that exceeded the calibration range. Results for these analytes in sample Y4ZB7 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

Sample Y4ZB8 was reanalyzed at a 10-fold dilution due to high levels of 1,1,2-trichloro-1,2,2-trifluoroethane and trichloroethene that exceeded the calibration range. Results for these analytes in sample Y4ZB8 are reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

*Sample Y4ZC2 was reanalyzed at a 5-fold dilution due to a high level of trichloroethene that exceeded the calibration range. The result for trichloroethene in sample Y4ZC2 is reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.*

Sample Y4ZC3 was reanalyzed at a 5-fold dilution due to a high level of tetrachloroethene that exceeded the calibration range. The result for tetrachloroethene in sample Y4ZC3 is reported from the diluted analysis in Table 1A; results for other analytes are reported from the undiluted analysis.

F. Sample Y4ZB5 was analyzed at a 2-fold dilution and samples Y4ZB6, Y4ZB9, and Y4ZC1 were analyzed at 5-fold dilutions due to high levels of target analytes. The CRQLs listed for these samples in Table 1A have been multiplied by the dilution factor.

## TABLE 1B

### *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*Table 2*
*Calibration Summary*

*Case No.:* *38845*
*SDG No.:* *Y4ZA6*
*Site:* *Omega Chem OU2*
*Laboratory:* *DataChem Laboratories, Inc.*
*Reviewer:* *April Martinez, ESAT/LDC*
*Date:* *October 29, 2009*

*RELATIVE RESPONSE FACTORS (RRF)*

| | | RRF | RRF | RRF |
|---|---|---|---|---|
| *Analysis date:* | | *8/25/09* | *9/08/09* | *9/08/09* |
| *Analysis time:* | | *13:38-* | *12:06* | *20:48* |
| *GC/MS I.D.:* | | *5971-M* | *5971-M* | *5971-M* |
| *Analyte* | | *Initial* | *CCV* | *CCV* |
| *Acetone* | | *0.029* | *0.028* | *0.021* |
| *2-Butanone* | | *-----* | *-----* | *0.042* |
| *2-Butanone-d5* | | *-----* | *-----* | *0.047* |
| *2-Hexanone-d5* | ----- | *-----* | *0.039* | |

| | | RRF | RRF | RRF | RRF |
|---|---|---|---|---|---|
| *Analysis date:* | | *9/09/09* | *9/09/09* | *9/10/09* | *9/10/09* |
| *Analysis time:* | | *11:23* | *19:47* | *11:47* | *20:55* |
| *GC/MS I.D.:* | | *5971-M* | *5971-M* | *5971-M* | *5971-M* |
| *Analyte* | | *CCV* | *CCV* | *CCV* | *CCV* |
| *Acetone* | | *0.029* | *0.028* | *0.027* | *0.031* |
| *2-Hexanone-d5* | ----- | *0.045* | *------* | *0.046* | |

*ASSOCIATED SAMPLES AND METHOD BLANKS*

*Initial, 8/25/09: All samples, all method blanks, and storage blank VHBLKT1*
*CCVs, 9/08/09 12:06 and 20:48:*
*Y4ZA6, Y4ZA7, Y4ZA8, Y4ZB3, Y4ZB3MS, Y4ZB3MSD, Y4ZB3DL, Y4ZB5, Y4ZB6DL, Y4ZC0, Y4ZC4; VBLKT1*
*CCVs, 9/09/09 11:23 and 19:47:*
*Y4ZA9 through Y4ZB2, Y4ZB4, Y4ZB5DL, Y4ZB8DL through Y4ZC2DL; VBLKT2*
*CCVs, 9/10/09 11:47 and 20:55:*
*Y4ZB6 through Y4ZB9, Y4ZC1 through Y4ZC3, Y4ZC3DL, Y4ZC4DL, Y4ZC5; VHBLKT1, VBLKT3.*

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300 Fax: (510) 412-2304*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405090 Amendment 2*

*DATE:* *December 18, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38940* |
| *SDG No.:* | *Y5129* |
| *Laboratory:* | *KAP Technologies, Inc. (KAP)* |
| *Analysis:* | *Trace Volatiles* |
| *Samples:* | *2 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *September 15, 2009* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

*cc:* *Ray Flores, CLP PO USEPA Region 6*
*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*

*Case No.:* *38940*
*SDG No.:* *Y5129*
*Site:* *Omega Chem OU2*
*Laboratory:* *KAP Technologies, Inc. (KAP)*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *December 18, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y5129 and Y5130* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *Trace Volatiles* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *September 15, 2009* |
| *Sample Receipt Date:* | *September 17, 2009* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *September 24, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Not provided* |
| *Equipment Blanks (EB):* | *Not provided* |
| *Trip Blanks (TB):* | *Not provided* |
| *Background Samples (BG):* | *Not provided* |
| *Field Duplicates (D1):* | *Not provided* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *VBLK16:* | *Y5129, Y5130, Y5129MS, Y5129MSD* |
| *VBLK67:* | *Storage blank VHBLK01* |

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*

### CLP PO Action

*None.*

*CLP PO Attention*

1. *The detected result for methylene chloride in storage blank VHBLK01 is qualified as nondetected and estimated (U,J) due to method blank contamination (see Comment B).*

2. *Results for some analytes are qualified as estimated (J) due to large percent relative standard deviations (%RSDs) in initial calibrations (see Comment C).*

Sampling Issues

1. *The sampler signature is missing on the traffic report and chain of custody record (TR/COC) (refer to page 4 in the data package).*

2. *No sample was designated for "laboratory QC" on the TR/COC. The laboratory performed the matrix spike/matrix spike duplicate (MS/MSD) analysis on sample Y5129.*

### Additional Comments

*The DMC 2-hexanone-d5 had relative response factors (RRFs) below the 0.05 validation criterion in initial calibrations and continuing calibration verifications. Quantitation of the analytes associated with this DMC (4-methyl-2-pentanone and 2-hexanone) may have been affected by low RRFs.*

*In addition to laboratory artifacts (approximate retention times of 11.1, 12.0, and 16.1 minutes), tentatively identified compounds (TICs) were found in sample Y5130 (see attached Form 1J).*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | *Parameter* | *Acceptable* | *Comment* |
|---|---|---|---|
| *57.* | *Holding Time/Preservation* | *Yes* | |
| *58.* | *GC/MS Tune/GC Performance* | *Yes* | |

| | | | |
|---|---|---|---|
| *59.* | *Initial Calibration* | *No* | *C* |
| *60.* | *Continuing Calibration Verification* | *Yes* | |
| *61.* | *Laboratory Blanks* | *No* | *B* |
| *62.* | *Field Blanks* | *N/A* | |
| *63.* | *Deuterated Monitoring Compounds* | *Yes* | |
| *64.* | *Matrix Spike/Matrix Spike Duplicate* | *Yes* | |
| *65.* | *Laboratory Control Sample/Duplicate* | *N/A* | |
| *66.* | *Internal Standards* | *Yes* | |
| *67.* | *Compound Identification* | *Yes* | |
| *68.* | *Compound Quantitation* | *Yes* | *A* |
| *69.* | *System Performance* | *Yes* | |
| *70.* | *Field Duplicate Sample Analysis* | *N/A* | |

*N/A = Not Applicable*

## III. Validity AND Comments

*A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- *All detected results below the contract required quantitation limits*

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

*B. The following result is qualified as nondetected and estimated due to method blank contamination and is flagged "U,J" in Table 1A.*

- *Methylene chloride in storage blank VHBLK01*

*Methylene chloride was found in method blanks VBLK16 and VBLK67 (see Table 1A for concentrations). The result for methylene chloride in storage blank VHBLK01 is considered nondetected and estimated (U,J) and the quantitation limit has been raised according to blank qualification rules presented below.*

*No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result and reported as nondetected. If the sample result is less than the CRQL, the result is reported as nondetected at the CRQL.*

*A laboratory method blank is laboratory reagent water or baked sand analyzed with all reagents, deuterated monitoring compounds, and internal standards and carried through*

*the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during analysis.*

C. *Results for the following analytes are qualified as estimated due to large %RSDs in initial calibrations and are flagged "J" in Table 1A.*

- *Bromomethane in all samples, all method blanks, and storage blank VHBLK01*

- *cis-1,3-Dichloropropene in method blank VBLK67 and storage blank VHBLK01*

*%RSDs of 31.0% and 35.3% were reported for bromomethane in 09/24/09 and 10/02/09 initial calibrations, respectively. An %RSD of 31.8% was reported for cis-1,3-dichloropropene in the 10/02/09 initial calibration. These values exceeded the ≤30.0% validation criterion.*

## TABLE 1B

### *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*APPENDIX G-2*

# 1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles Selective Ion Monitoring (SIM)

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300; Fax: (510) 412-2304.*

*MEMORANDUM*

*TO:* *Chris Lichens, Remedial Project Manager*
*Site Cleanup Section 4, SFD-7-4*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00105132*

*DATE:* *April 18, 2008*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *37203* |
| *SDG No.:* | *Y3WK7* |
| *Laboratory:* | *Mitkem Laboratories (MITKEM)* |
| *Analysis:* | *1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles Selective Ion Monitoring (SIM)* |
| *Samples:* | *20 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *February 28 and 29, 2008 and March 3, 2008* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

cc: Jennie Han-Liu, CLP PO USEPA Region 1

*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [ ] Yes [X] No*

*Case No.:* *37203*
*SDG No.:* *Y3WK7*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *April 18, 2008*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y3WK7 through Y3WM6* |
| *Concentration and Matrix:* | *Low/Medium Concentration Water* |
| *Analysis:* | *1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles SIM* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *February 28 and 29, 2008 and March 3, 2008* |
| *Sample Receipt Date:* | *February 29, 2008 and March 3 and 4, 2008* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *March 4, 6, and 7, 2008* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Y3WM6* |
| *Equipment Blanks (EB):* | *Not Provided* |
| *Trip Blanks (TB):* | *Y3WL7* |
| *Background Samples (BG):* | *Not Provided* |
| *Field Duplicates (D1):* | *Y3WL2 and Y3WL3* |
| *Field Duplicates (D2):* | *Y3WM4 and Y3WM5* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *VBLKB2:* | *Y3WK7 through Y3WL7* |
| *VBLKE2:* | *Y3WL8 through Y3WM6* |
| *VBLKG2:* | *storage blank VHBLKG2* |

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*
*2: Calibration Summary*

### CLP PO Action

*None.*

*CLP PO Attention*

Results for 1,2-dibromo-3-chloropropane are qualified as estimated (J) due to low relative response factors (RRFs) in initial calibration and continuing calibration verifications (CCVs) (see Comment A).

Sampling Issues

*None.*

### Additional Comments

*Matrix spike/matrix spike duplicate (MS/MSD) analysis was not performed by the laboratory. Consequently, matrix-specific accuracy and precision could not be evaluated.*

*This report was prepared in accordance with the following documents:*

- ESAT Region 9 Standard Operating Procedure 901, *Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages*;
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration,* SOM01.1, May 2005;
- *Modifications Updating SOM01.1 to SOM01.2,* Amended April 11, 2007; and
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, July 2007.

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 71. | *Holding Time/Preservation* | *Yes* | |
| 72. | *GC/MS Tune/GC Performance* | *Yes* | |
| 73. | *Initial Calibration* | *No* | *A* |
| 74. | *Continuing Calibration Verification* | *No* | *A* |
| 75. | *Laboratory Blanks* | *Yes* | |
| 76. | *Field Blanks* | *Yes* | |
| 77. | *Deuterated Monitoring Compounds* | *Yes* | |
| 78. | *Matrix Spike/Matrix Spike Duplicate* | *N/A* | |

| | | |
|---|---|---|
| *79.* | *Laboratory Control Samples/Duplicate* | *N/A* |
| *80.* | *Internal Standards* | *Yes* |
| *81.* | *Compound Identification* | *Yes* |
| 82. | COMPOUND QUANTITATION | YES |
| 83. | SYSTEM PERFORMANCE | YES |
| *84.* | *Field Duplicate Sample Analysis* | *Yes* |

*N/A = Not Applicable*

*A. Results for the following analyte are qualified as estimated due to low RRFs in initial calibration and CCVs and are flagged "J" in Table 1A.*

- *1,2-Dibromo-3-chloropropane in all samples, all method blanks, and storage blank VHBLKG2*

*An average RRF of 0.049 was reported for 1,2-dibromo-3-chloropropane in the initial calibration. RRFs were below the 0.05 validation criterion for 1,2-dibromo-3-chloropropane in CCVs (see Table 2). Since qualified results are nondetected, false negatives may exist.*

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

## *TABLE 1B*

## *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," July 2007.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*Table 2*
*Calibration Summary*

*Case No.:* *37203*
*SDG No.:* *Y3WK7*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *April 18, 2008*

*RELATIVE RESPONSE FACTORS (RRF)*

| | | RRF | RRF | RRF | RRF |
|---|---|---|---|---|---|
| *Analysis date:* | | *03/04/08* | *03/06/08* | *03/06/08* | *03/07/08* |
| *Analysis time:* | | *20:11* | *08:40* | *18:07* | *08:52* |
| *GC/MS I.D.:* | | *V2* | *V2* | *V2* | *V2* |
| *Analyte* | | *Cont.* | *Cont.* | *Cont.* | *Cont.* |
| *1,2-Dibromo-3-chloropropane* | *0.048* | *0.036* | *0.046* | *0.046* | |

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300; Fax: (510) 412-2304.*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405051*

*DATE:* *April 23, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38274* |
| *SDG No.:* | *Y4N51* |
| *Laboratory:* | *Mitkem Laboratories (MITKEM)* |
| *Analysis:* | *1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles Selective Ion Monitoring (SIM)* |
| *Samples:* | *20 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *March 2 through 5, 2009* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

cc: Jennie Han-Liu, CLP PO USEPA Region 1

*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [ ] Attention [ ] Action*

*SAMPLING ISSUES: [ ] Yes [X] No*

*Case No.:* *38274*
*SDG No.:* *Y4N51*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *April 23, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y4N51 through Y4N53, Y4N55 through Y4N70, and Y4N73* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles SIM* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *March 2 through 5, 2009* |
| *Sample Receipt Date:* | *March 3 through 6, 2009* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *March 11 and 12, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Y4N63 and Y4N67* |
| *Equipment Blanks (EB):* | *Not Provided* |
| *Trip Blanks (TB):* | *Not Provided* |
| *Background Samples (BG):* | *Not Provided* |
| *Field Duplicates (D1):* | *Y4N60 and Y4N61* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *VBLK5X:* | *Y4N51 through Y4N53, Y4N55 through Y4N67* |
| *VBLK5Y:* | *Y4N68 through Y4N70, Y4N73; storage blank VHBLK5Y* |

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*

### CLP PO Action

*None.*

*CLP PO Attention*

None.

Sampling Issues

*None.*

## Additional Comments

*Matrix spike/matrix spike duplicate (MS/MSD) analysis was not required. Consequently, matrix-specific accuracy and precision could not be evaluated.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, July 2007.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 85. | *Holding Time/Preservation* | *Yes* | |
| 86. | *GC/MS Tune/GC Performance* | *Yes* | |
| 87. | *Initial Calibration* | *Yes* | |
| 88. | *Continuing Calibration Verification* | *Yes* | |
| 89. | *Laboratory Blanks* | *Yes* | |
| 90. | *Field Blanks* | *Yes* | |
| 91. | *Deuterated Monitoring Compounds* | *Yes* | |
| 92. | *Matrix Spike/Matrix Spike Duplicate* | *N/A* | |
| 93. | *Laboratory Control Samples/Duplicate* | *N/A* | |
| 94. | *Internal Standards* | *Yes* | |
| 95. | *Compound Identification* | *Yes* | |

| | | | |
|---|---|---|---|
| 96. | COMPOUND QUANTITATION | YES | A |
| 97. | SYSTEM PERFORMANCE | YES | |
| *98.* | *Field Duplicate Sample Analysis* | *Yes* | |

*N/A = Not Applicable*

## III. Validity AND Comments

*A. The laboratory reported a sample quantitation limit of 0.050 ug/L for 1,2-dibromo-3-chloropropane. However, the instrument response for the 0.050 ug/L initial calibration standard was only 89 area counts, which is very low (refer to quantitation report on page 661 in data package.) In the reviewer's professional judgment, the sample quantitation limit should be raised to 0.1 ug/L, the standard having a higher area count of 176 (refer to quantitation report on page 663 in data package.) Non-detected results are reported as 0.10U in Table 1A.*

## *TABLE 1B*

## *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," July 2007.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

## Data Review Results

*Modified by ESAT. Changes (*) are based on hardcopy Tier 1A forms review (of VOA_TRACE data only) and shown as ~~strikethrough~~ and **underline bold**. Reviewer: Santiago Lee (EPA Contract EPW06041, TDF 00405051, ICF International). Date: 05/11/09. DCN: 10724.*

* ***Results above calibration range, denoted by an "E" flag, are qualified J (estimated) in Amended Table 1A. Results from the diluted analyses should be used.***

**Data users should note that the diluted concentrations for some analytes in following samples are significantly lower than the undiluted concentrations.**

| Sample | Analyte | Undiluted Conc., µg/L | Diluted Conc., µg/L |
|---|---|---|---|
| Y4N71 | Tetrachloroethene | 210 | 120 |
| Y4N72 | Tetrachloroethene | 260 | 120 |
| Y4N76 | 1,1,1-Trichloroethane | 9100 | 820 |
| Y4N76 | Trichloroethene | 11000 | 2000U |
| Y4N76 | Tetrachloroethene | 79000 | 49000 |
| Y4N77 | Tetrachloroethene | 130 | 42 |
| Y4N81 | Trichloroethene | 120 | 47 |
| Y4N81 | Tetrachloroethene | 1800 | 540 |
| Y4N83 | Tetrachloroethene | 53 | 25 |

***Samples Y4N85, Y4N86, and Y4N87 were received by the laboratory with a cooler temperature of 7°C which exceeds the 4+2°C sample preservation criterion. Since the cooler temperature is below 10°C, no adverse effect on data quality is expected.***

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Blanks

| **Blanks** | **VOA_TRACE** |
|---|---|
| VTLB15 | The following trace volatile samples have common contaminant analyte concentrations reported greater than or equal to 4x the CRQL. The associated method blank has common contaminant analytes concentration is less than or equal to 2x the concentration criteria. Detected and nondetected compounds are not qualified. |
| | **Methylene chloride** Y4N76 |
| **Blanks** | **VOA_TRACE** |
| VTLB48 | The following trace volatile samples have common contaminant analyte concentrations reported greater than or equal to 4x the CRQL. The associated storage blank has common contaminant analytes concentration is less than or equal to 2x the concentration criteria. Detected and nondetected compounds are not qualified. |
| | **Methylene chloride** Y4N76 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Continuing Calibration Verification

| Continuing Calibration Verification | VOA_TRACE |
|---|---|
| VTC8 | The following trace volatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. |
| | VBLKC5, VBLKD5, Y4N71DL, Y4N72DL, Y4N74, Y4N75, Y4N76DL, Y4N77DL, Y4N78, Y4N79, Y4N80, Y4N82, Y4N83DL, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |
| | **Bromomethane** VSTD005C5, VSTD005D5 |
| | VBLKC5, VBLKD5, Y4N71DL, Y4N72DL, Y4N74, Y4N75, Y4N76DL, Y4N77DL, Y4N78, Y4N79, Y4N80, Y4N82, Y4N83DL, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

DMC/Surrogate

| DMC/Surrogate | VOA_TRACE |
|---|---|
| VTDSS2 | The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified. |
| | Y4N72, Y4N74, Y4N75, Y4N76, Y4N78, Y4N79, Y4N80, Y4N81, Y4N82, Y4N83, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |
| | **Benzene-d6** Y4N76, Y4N81 |
| | Benzene |
| | **Chloroethane-d5** Y4N76 |
| | Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane |
| | **Toluene-d8** Y4N76, Y4N81 |
| | Ethylbenzene, Isopropylbenzene, Styrene, Tetrachloroethene, Toluene, Trichloroethene, m,p-Xylene, o-Xylene |
| * | **1,1-Dichloroethene-d2** Y4N74, Y4N75, Y4N76, Y4N78, Y4N79, Y4N80, Y4N81, Y4N82, Y4N83, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91, **Y4N71DL, Y4N72DL, Y4N76DL, Y4N77DL, Y4N83DL** |
| | 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene |
| | **1,1,2,2-Tetrachloroethane-d2** Y4N81 |
| | 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane |
| | **2-Hexanone-d5** Y4N76 |
| | 2-Hexanone, 4-Methyl-2-pentanone |
| | **Vinyl chloride-d3** Y4N72, Y4N76, Y4N83, Y4N89 |
| | Vinyl chloride |
| | **Chloroform-d** Y4N76 |
| | 1,1-Dichloroethane, Bromochloromethane, Bromoform, Chloroform, Dibromochloromethane |
| | **trans-1,3-Dichloropropene-d4** Y4N76, Y4N81 |
| | 1,1,2-Trichloroethane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene |
| | **1,2-Dichloropropane-d6** Y4N76, Y4N81 |
| | 1,2-Dichloropropane, Bromodichloromethane, Cyclohexane, Methylcyclohexane |
| DMC/Surrogate | VOA_TRACE |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

DMC/Surrogate

| | |
|---|---|
| VTDSS3 | The following trace volatile samples have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ. |
| | Y4N76, Y4N77, Y4N78, Y4N82, Y4N89, Y4N90, Y4N91 |
| | **1,2-Dichloroethane-d4** Y4N77 |
| | 1,1,1-Trichloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,2-Dibromoethane, 1,2-Dichloroethane, Carbon tetrachloride, Methyl acetate, Methyl tert-butyl ether, Methylene chloride, Trichlorofluoromethane |
| * | **Chloroethane-d5** Y4N77, Y4N78, **Y4N72DL** |
| | Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane |
| * | **1,2-Dichlorobenzene-d4** Y4N78, Y4N82, Y4N89, Y4N90, Y4N91, **Y4N76DL, Y4N83DL** |
| | 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, Chlorobenzene |
| | **1,1,2,2-Tetrachloroethane-d2** Y4N76 |
| | 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Detection Limit

| Detection Limit | VOA_TRACE |
|---|---|
| VTDL1 | The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J. Nondetected compounds are not qualified. |
| | VBLK5V, VBLKC5, VBLKD5, VHBLKG5, Y4N71, Y4N72, Y4N76DL, Y4N79, Y4N83, Y4N83DL, Y4N84, Y4N85, Y4N87, Y4N90 |
| | **Tetrachloroethene** Y4N87 |
| | **cis-1,2-Dichloroethene** Y4N85 |
| | **trans-1,2-Dichloroethene** Y4N72 |
| | **Methyl tert-butyl ether** Y4N71, Y4N72 |
| | **Chloroform** Y4N79, Y4N83DL, Y4N84 |
| | **1,1,1-Trichloroethane** Y4N76DL |
| | **Methylene chloride** VBLK5V, VBLKC5, VBLKD5, VHBLKG5 |
| | **1,1-Dichloroethane** Y4N71, Y4N72, Y4N83 |
| | **Trichloroethene** Y4N90 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Initial Calibration

| Initial Calibration | VOA_SIM |
|---|---|
| VTC15 | The following volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | VBLK5Y, VBLKJ5, VHBLKJ5, Y4N71, Y4N72, Y4N74, Y4N75, Y4N77, Y4N78, Y4N79, Y4N80, Y4N81, Y4N82, Y4N83, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |
| | **1,2-Dibromo-3-chloropropane** VSTD0.055X, VSTD0.05J5, VSTD0.15X, VSTD0.1J5, VSTD0.5J5, VSTD1.0J5, VSTD2.05X, VSTD2.0J5 |
| | VBLKJ5, VHBLKJ5, Y4N82, Y4N83, Y4N84, Y4N85, Y4N86, Y4N87, Y4N88, Y4N89, Y4N90, Y4N91 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4N71 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 69891 **SOW** SOM01.2

## Data Review Results

Internal Standard

| **Internal Standard** | | **VOA_TRACE** |
|---|---|---|
| VTIS3 | * | The following volatile samples have internal standard area counts that are outside the upper limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are ~~not qualified~~ **qualified J (Region 9 modification)**. |
| | | **1,4-Difluorobenzene** Y4N77 |
| **Internal Standard** | | **VOA_TRACE** |
| VTIS31 | | The following trace volatile samples have internal standard area counts that are outside the lower limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | * | **Chlorobenzene-d5** Y4N76, ~~Y4N81~~ |
| | * | ~~**1,4-Dichlorobenzene-d4** Y4N76~~ |
| | * | **The following trace volatile samples have internal standard area counts that are outside the lower limit of primary criteria. Detected compounds are qualified J. Nondetected compounds are qualified J (area counts >25%; Region 9 modification).** |
| | * | **Chlorobenzene-d5 Y4N81** |
| | * | **1,4-Dichlorobenzene-d4 Y4N76** |

| ***TIC*** | ***VOA_TRACE*** |
|---|---|
| *VTTIC1* | *A library search indicates a match at or above 85% for a TIC compound in the trace volatile sample Detected compounds are qualified NJ. Nondetected compounds are not qualified.* |
| | ***354-23-4*** *Y4N83* |
| ***TIC*** | ***VOA_TRACE*** |
| *VTTIC2* | *A library search indicates a match below 85% for a TIC compound in the trace volatile sample Detected compounds are qualified J. Nondetected compounds are not qualified.* |
| | *Y4N71, Y4N72, Y4N76* |
| | ***Unknown-01*** *Y4N72, Y4N76* |
| | ***Unknown-02*** *Y4N71, Y4N76* |
| | ***Unknown-03*** *Y4N76* |
| | ***Unknown-04*** *Y4N76* |
| | ***Unknown-05*** *Y4N76* |

*Modified by ESAT. Changes (*) are based on hardcopy Tier 1A forms review (of VOA_TRACE data only) and shown as ~~strikethrough~~ and **underline bold**. Reviewer: Santiago Lee (EPA Contract EPW06041, TDF 00405051, ICF International). Date: 05/11/09. DCN: 10725.*

* ***Results above calibration range, denoted by an "E" flag, are qualified J (estimated) in Amended Table 1A. Results from the diluted analyses should be used.***

**Data users should note that the diluted concentrations for some analytes in following samples are significantly lower than the undiluted concentrations.**

| *Sample* | *Analyte* | *Undiluted Conc., µg/L* | *Diluted Conc., µg/L* |
|---|---|---|---|
| *Y4NC4* | *Trichlorofluoromethane* | *31* | *14* |
| *Y4NC4* | *1,1,2-Trichloro-1,2,2-trifluoromethane* | *79* | *30* |
| *Y4NC4* | *Tetrachloroethene* | *130* | *74* |
| *Y4NC5* | *Tetrachloroethene* | *120* | *84* |

* ***The following results are qualified UJ or J (estimated) in Amended Table 1A due to low relative response factors (RRFs).***

- ***Acetone in samples Y4NC3, Y4NC2DL, Y4NC4DL, Y4NC5DL, and Y4NC6DL; method blanks VBLKN6 and VBLKS6; and storage blank VHBLKS6***
- ***2-Butanone in all samples, all method blanks, and storage blank VHBLKS6***
- ***1,2-Dibromo-3-chloropropane in samples Y4NB3DL, Y4NB4DL, Y4NC3, Y4NC2DL, Y4NC4DL, Y4NC5DL, and Y4NC6DL; method blanks VBLKW5, VBLKN6, and VBLKS6; and storage blank VHBLKS6***

***RRFs <0.05 and >0.01 were reported for acetone, 2-butanone, and 1,2-dibromo-3-chloropropane in initial calibrations and continuing calibration verifications (CCVs) (Region 9 modification). Since qualified results are nondetected, false negatives may exist.***

**The R-flags for dichlorodifluoromethane, chloromethane, bromomethane, chloroethane, and carbon disulfide in sample Y4NB3 are sustained since the recovery for DMC chloroethane-d5 is <20.0% (18%).**

# National Functional Guidelines Report # 3

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

Blanks

| **Blanks** | **VOA_TRACE** |
|---|---|
| VTLB11 | The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated method blank has common contaminant analyte concentration is less than 2x the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL. |
| | **Methylene chloride** Y4NC2DL, Y4NC3, Y4NC4DL, Y4NC5DL, Y4NC6DL |
| **Blanks** | **VOA_TRACE** |
| VTLB44 | The following trace volatile samples have common contaminant analyte concentrations reported less than 2x the CRQL. The associated storage blank has common contaminant analyte concentration is less than 2x the concentration criteria. Detected compounds are qualified U. Nondetected compounds are not qualified. Reported sample concentrations have been elevated to the CRQL. |
| | **Methylene chloride** Y4NC2DL, Y4NC3, Y4NC4DL, Y4NC5DL, Y4NC6DL |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

Continuing Calibration Verification

| **Continuing Calibration Verification** | **VOA_SIM** |
|---|---|
| VTC14 | The following trace volatile samples are associated with a CCV with relative response factors (RRF50) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | VBLK6J, VBLKM6, VHBLKM6, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC3, Y4NC4, Y4NC5, Y4NC6, Y4NC7 |
| | **1,2-Dibromo-3-chloropropane** VSTD0.56J, VSTD0.5M6 |
| | VBLK6J, VBLKM6, VHBLKM6, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC3, Y4NC4, Y4NC5, Y4NC6, Y4NC7 |
| **Continuing Calibration Verification** | **VOA_TRACE** |
| VTC8 | The following trace volatile samples are associated with an opening or closing CCV percent difference (%D) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified UJ. |
| | VBLKV5, VBLKW5, Y4NB2, Y4NB3, Y4NB3DL, Y4NB4, Y4NB4DL, Y4NB5, Y4NB6, Y4NB7, Y4NB8, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC4, Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD, Y4NC7 |
| | **Bromoform** VSTD005W5 |
| | VBLKW5, Y4NB3DL, Y4NB4DL |
| | **1,2,3-Trichlorobenzene** VSTD005V5 |
| | VBLKV5, Y4NB2, Y4NB3, Y4NB4, Y4NB5, Y4NB6, Y4NB7, Y4NB8, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC4, Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD, Y4NC7 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

DMC/Surrogate

| DMC/Surrogate | VOA_TRACE |
|---|---|
| VTDSS2 | The following volatile samples have DMC/SMC recoveries above the upper limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are not qualified. |
| | Y4NB3, Y4NB4, Y4NB5, Y4NB6, Y4NC4, Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD |
| * | **1,1-Dichloroethene-d2** Y4NB3, Y4NB4, Y4NB6, Y4NC4, Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD, **Y4NC6DL** |
| | 1,1-Dichloroethene, cis-1,2-Dichloroethene, trans-1,2-Dichloroethene |
| | **Chloroform-d** Y4NC5, Y4NC6, Y4NC6MS, Y4NC6MSD |
| | 1,1-Dichloroethane, Bromochloromethane, Bromoform, Chloroform, Dibromochloromethane |
| | **trans-1,3-Dichloropropene-d4** Y4NB5, Y4NC6, Y4NC6MS, Y4NC6MSD |
| | 1,1,2-Trichloroethane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene |
| **DMC/Surrogate** | **VOA_TRACE** |
| VTDSS3 | The following trace volatile samples have one or more DMC/SMC recovery values is less than the primary lower limit but greater than or equal to the expanded lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified UJ. |
| | Y4NB2, Y4NB4, Y4NC0 |
| | **Chloroethane-d5** Y4NB2, Y4NB4 |
| | Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane |
| * | **1,1,2,2-Tetrachloroethane-d2** Y4NB2, Y4NC0, **Y4NB3DL** |
| | 1,1,2,2-Tetrachloroethane, 1,2-Dibromo-3-chloropropane |
| **DMC/Surrogate** | **VOA_TRACE** |
| VTDSS5 | The following trace volatile samples have DMC/SMC recoveries below the expanded lower limit of the criteria window. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | **Chloroethane-d5** Y4NB3 |
| | Bromomethane, Carbon disulfide, Chloroethane, Chloromethane, Dichlorodifluoromethane |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

Detection Limit

| Detection Limit | VOA_TRACE |
|---|---|
| VTDL1 | The following volatile samples have analyte concentrations below the quantitation limit (CRQL). Detected compounds are qualified J. Nondetected compounds are not qualified. |
| | VBLKN6, VBLKS6, Y4NB3DL, Y4NB4DL, Y4NC0, Y4NC1, Y4NC2, Y4NC2DL, Y4NC3, Y4NC4, Y4NC4DL, Y4NC5, Y4NC5DL, Y4NC6DL, Y4NC7 |
| | **Tetrachloroethene** Y4NC0, Y4NC7 |
| | **cis-1,2-Dichloroethene** Y4NB3DL, Y4NB4DL, Y4NC2, Y4NC2DL, Y4NC4DL, Y4NC5DL, Y4NC6DL |
| | **Chloroform** Y4NC2, Y4NC2DL |
| | **Methylene chloride** VBLKN6, VBLKS6, Y4NC2DL, Y4NC3 |
| | **1,1-Dichloroethane** Y4NC4, Y4NC5 |
| | **Trichloroethene** Y4NC0, Y4NC1 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

Initial Calibration

| Initial Calibration | VOA_SIM |
|---|---|
| VTC15 | The following volatile samples are associated with an initial calibration with relative response factors (RRFs) outside criteria. Detected compounds are qualified J. Nondetected compounds are qualified R. |
| | VBLK6J, VBLKJ6, VBLKM6, VHBLKM6, Y4NB2, Y4NB3, Y4NB4, Y4NB5, Y4NB6, Y4NB7, Y4NB8, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC3, Y4NC4, Y4NC5, Y4NC6, Y4NC7 |
| | **1,2-Dibromo-3-chloropropane** VSTD0.05J6, VSTD0.1J6, VSTD0.5J6, VSTD1.0J6, VSTD2.0J6 |
| | VBLK6J, VBLKJ6, VBLKM6, VHBLKM6, Y4NB2, Y4NB3, Y4NB4, Y4NB5, Y4NB6, Y4NB7, Y4NB8, Y4NB9, Y4NC0, Y4NC1, Y4NC2, Y4NC3, Y4NC4, Y4NC5, Y4NC6, Y4NC7 |

**Lab** MITKEM (Mitkem Corporation) **SDG** Y4NB2 **Case** 38274 **Contract** EPW05030 **Region** 9 **DDTID** 70218 **SOW** SOM01.2

## Data Review Results

Matrix Spikes

| Matrix Spikes | VOA_TRACE |
|---|---|
| VTMS2 * | The relative percent difference (RPD) between the following volatile matrix spike and matrix spike duplicate recoveries is outside criteria. ~~Detected compounds are qualified J. Nondetected compounds are not qualified~~ **The RPDs for 1,1-dichloroethene and trichloroethene are not meaningful because sample concentrations (148 ug/L and 256, respectively) are much higher than the spike concentration of 5.0 ug/L**. |
| | **1,1-Dichloroethene** Y4NC6MS, Y4NC6MSD |
| | **Trichloroethene** Y4NC6MS, Y4NC6MSD |
| **Matrix Spikes** | **VOA_TRACE** |
| VTMS3 * | The following trace volatile matrix spike/matrix spike duplicate samples have percent recoveries greater than the upper acceptance criteria. ~~Detected compounds are qualified J. Nondetected compounds are not qualified~~ **The recoveries for 1,1-dichloroethene and trichloroethene are not meaningful because sample concentrations (148 ug/L and 256, respectively) are much higher than the spike concentration of 5.0 ug/L**. |
| | **1,1-Dichloroethene** Y4NC6MS, Y4NC6MSD |
| | **Trichloroethene** Y4NC6MS, Y4NC6MSD |

| *TIC* | *VOA_TRACE* |
|---|---|
| *VTTIC2* | *A library search indicates a match below 85% for a TIC compound in the trace volatile sample  Detected compounds are qualified J. Nondetected compounds are not qualified.* |
| | ***Unknown-01*** *Y4NB6* |

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300; Fax: (510) 412-2304.*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405058*

*DATE:* *June 1, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38275* |
| *SDG No.:* | *Y4Q41* |
| *Laboratory:* | *CompuChem (LIBRTY)* |
| *Analysis:* | *1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles Selective Ion Monitoring (SIM)* |
| *Samples:* | *20 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *April 7, 2009* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

cc: Cynthia Gurley, CLP PO USEPA Region 4

*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [ ] Yes [X] No*

*Data Validation Report - Tier 3*

*Case No.:* *38275*
*SDG No.:* *Y4Q41*
*Site:* *Omega Chem OU2*
*Laboratory:* *CompuChem (LIBRTY)*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *June 1, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y4Q41 through Y4Q60* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles SIM* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *April 7, 2009* |
| *Sample Receipt Date:* | *April 8, 2009* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *April 15 and 16, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Y4Q62 and Y4Q68 (in SDG Y4Q61)* |
| *Equipment Blanks (EB):* | *Not Provided* |
| *Trip Blanks (TB):* | *Not Provided* |
| *Background Samples (BG):* | *Not Provided* |
| *Field Duplicates (D1):* | *Y4Q52 and Y4Q53* |
| *Field Duplicates (D2):* | *Y4Q55 and Y4Q56* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *VBLKJH:* | *Y4Q42 through Y4Q45, Y4Q48 through Y4Q52* |
| *VBLKDO:* | *Y4Q41, Y4Q46, Y4Q47, Y4Q53 through Y4Q55, Y4Q57, Y4Q60* |
| *VBLKJK:* | *Y4Q58, Y4Q59, Y4Q56; storage blank VHBLKYA* |

*Tables*

| | |
|---|---|
| *1A:* | *Analytical Results with Qualifications* |
| *1B:* | *Data Qualifier Definitions for Organic Data Review* |

### CLP PO Action

*None.*

*CLP PO Attention*

Results for 1,2-dibromo-3-chloropropane in samples Y4Q42 through Y4Q45 and Y4Q48 through Y4Q52 are qualified as estimated (J) due to calibration problems (see Comments A and B).

Sampling Issues

*None.*

### Additional Comments

*The laboratory performed manual integrations on calibrations and samples due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.*

*Matrix spike/matrix spike duplicate (MS/MSD) analysis was not required. Consequently, matrix-specific accuracy and precision could not be evaluated.*

*Standard preparation logs are not included in the data package and cannot be evaluated. This information was requested from the laboratory but has not been received to date. Data are not qualified in this report due to missing standard preparation logs.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 99. | *Holding Time/Preservation* | *Yes* | |
| 100. | *GC/MS Tune/GC Performance* | *Yes* | |
| 101. | *Initial Calibration* | *Yes* | |
| 102. | *Continuing Calibration Verification* | *No* | *A, B* |
| 103. | *Laboratory Blanks* | *Yes* | |

| | | | |
|---|---|---|---|
| *104.* | *Field Blanks* | *Yes* | |
| *105.* | *Deuterated Monitoring Compounds* | *Yes* | |
| *106.* | *Matrix Spike/Matrix Spike Duplicate* | *N/A* | |
| *107.* | *Laboratory Control Samples/Duplicate* | *N/A* | |
| *108.* | *Internal Standards* | *Yes* | |
| *109.* | *Compound Identification* | *Yes* | |
| 110. | COMPOUND QUANTITATION | YES | C |
| 111. | SYSTEM PERFORMANCE | YES | |
| *112.* | *Field Duplicate Sample Analysis* | *Yes* | |

*N/A = Not Applicable*

## III. Validity AND Comments

*A. Results for the following analyte are qualified as estimated due to a low relative response factor (RRF) in a continuing calibration verification (CCV) and are flagged "J" in Table 1A.*

- *1,2-Dibromo-3-chloropropane in samples Y4Q42 through Y4Q45 and Y4Q48 through Y4Q52 and method blank VBLKJH*

*A RRF of 0.037 was reported for 1,2-dibromo-3-chloropropane in the 04/15/09 17:12 CCV. Since results are nondetected, false negatives may exist.*

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

*B. Results for the following analyte are qualified as estimated due to a large %D in a CCV and are flagged "J" in Table 1A.*

- *1,2-Dibromo-3-chloropropane in samples Y4Q42 through Y4Q45 and Y4Q48 through Y4Q52 and method blank VBLKJH*

*A %D of -43.5% was reported for 1,2-dibromo-3-chloropropane in the 04/15/09 17:12 CCV. This value exceeds the $\pm$40.0% validation criterion for opening CCVs.*

*The continuing calibration verification checks satisfactory performance of the instrument on a day-to-day basis.*

*C. The laboratory reported a sample quantitation limit of 0.050 ug/L for 1,2-dibromo-3-chloropropane. However, the instrument response for the 0.050 ug/L initial calibration standard was only 53 area counts with a signal-to-noise ratio of less than 1:5, which are*

*very low (refer to pages 1103 and 1105 in data package). In the reviewer's professional judgment, the sample quantitation limit should be raised to 0.10 ug/L, the standard having a higher area count of 120 and a signal-to-noise ratio of greater than 1:5 (refer to pages 1111 and 1113 in data package). Non-detected results are reported as 0.10U in Table 1A.*

## *TABLE 1B*

## *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," July 2007.*

| | |
|---|---|
| *U* | *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.* |
| *L* | *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.* |
| *J* | *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).* |
| *NJ* | *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.* |
| *UJ* | *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.* |
| *R* | *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.* |

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300 Fax: (510) 412-2304*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405090 Amendment 2*

*DATE:* *December 14, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38940* |
| *SDG No.:* | *Y5129* |
| *Laboratory:* | *KAP Technologies, Inc. (KAP)* |
| *Analysis:* | *1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles Selective Ion Monitoring (SIM)* |
| *Samples:* | *2 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *September 15, 2009* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

*cc:* *Ray Flores, CLP PO USEPA Region 6*
*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [ ] Attention [ ] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*

*Case No.:* *38940*
*SDG No.:* *Y5129*
*Site:* *Omega Chem OU2*
*Laboratory:* *KAP Technologies, Inc. (KAP)*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *December 14, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y5129 and Y5130* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *1,2-Dibromoethane and 1,2-Dibromo-3-chloropropane by Trace Volatiles SIM* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *September 15, 2009* |
| *Sample Receipt Date:* | *September 17, 2009* |
| *Extraction Date:* | *Not Applicable* |
| *Analysis Date:* | *September 25, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Not provided* |
| *Equipment Blanks (EB):* | *Not provided* |
| *Trip Blanks (TB):* | *Not provided* |
| *Background Samples (BG):* | *Not provided* |
| *Field Duplicates (D1):* | *Not provided* |

### Laboratory QC

*Method Blanks & Associated Samples:*

*VBLK46:* *Y5129, Y5130; storage blank VHBLK02*

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*

### CLP PO Action

*None.*

*CLP PO Attention*

*None.*

Sampling Issues

1. *The sampler signature is missing on the traffic report and chain of custody record (TR/COC) (refer to page 4 in the data package).*

2. *No sample was designated for "laboratory QC" on the TR/COC and the matrix spike/matrix spike duplicate (MS/MSD) analysis was not performed. Consequently, the matrix-specific accuracy and precision could not be evaluated.*

**Additional Comments**

*The laboratory performed manual integrations on calibrations due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | *Parameter* | *Acceptable* | *Comment* |
|---|---|---|---|
| *113.* | *Holding Time/Preservation* | *Yes* | |
| *114.* | *GC/MS Tune/GC Performance* | *Yes* | |
| *115.* | *Initial Calibration* | *Yes* | |
| *116.* | *Continuing Calibration Verification* | *Yes* | |

| | | |
|---|---|---|
| *117.* | *Laboratory Blanks* | *Yes* |
| *118.* | *Field Blanks* | *N/A* |
| *119.* | *Deuterated Monitoring Compounds* | *Yes* |
| *120.* | *Matrix Spike/Matrix Spike Duplicate* | *N/A* |
| *121.* | *Laboratory Control Sample/Duplicate* | *N/A* |
| *122.* | *Internal Standards* | *Yes* |
| *123.* | *Compound Identification* | *Yes* |
| *124.* | *Compound Quantitation* | *Yes* |
| *125.* | *System Performance* | *Yes* |
| *126.* | *Field Duplicate Sample Analysis* | *N/A* |

*N/A = Not Applicable*

---

## *III. OVERALL ASSESSMENT OF DATA*

*All method requirements specified in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.2 (April 2007) have been met. Results for analytes in the samples were reported correctly.*

## TABLE 1B

### *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*Appendix G-3*

# 1,4-Dioxane (Semivolatile)

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300; Fax: (510) 412-2304.*

*MEMORANDUM*

*TO:* *Chris Lichens, Remedial Project Manager*
*Site Cleanup Section 4, SFD-7-4*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00105132*

*DATE:* *April 7, 2008*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *37203* |
| *SDG No.:* | *Y3WK7* |
| *Laboratory:* | *Mitkem Laboratories (MITKEM)* |
| *Analysis:* | *1,4-Dioxane (Semivolatile)* |
| *Samples:* | *18 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *February 28 and 29, 2008 and March 3, 2008* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

cc: Jennie Han-Liu, CLP PO USEPA Region 1

*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [ ] Attention [ ] Action*

*SAMPLING ISSUES: [ ] Yes [X] No*
*Data Validation Report - Tier 3*

*Case No.:* *37203*
*SDG No.:* *Y3WK7*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *April 7, 2007*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y3WK7 through Y3WL6 and Y3WL8 through Y3WM5* |
| *Concentration and Matrix:* | *Low/Medium Concentration Water* |
| *Analysis:* | *1,4-Dioxane (Semivolatile)* |
| *SOW:* | *SOM01.2 and Modified Analysis 1363.6* |
| *Collection Date:* | *February 28 and 29, 2008 and March 3, 2008* |
| *Sample Receipt Date:* | *February 29, 2008 and March 3 and 4, 2008* |
| *Extraction Date:* | *March 2, 3, and 5, 2008* |
| *Analysis Date:* | *March 3, 4, and 7, 2008* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Not Provided* |
| *Equipment Blanks (EB):* | *Not Provided* |
| *Background Samples (BG):* | *Not Provided* |
| *Field Duplicates (D1):* | *Y3WL2 and Y3WL3* |
| *Field Duplicates (D2):* | *Y3WM4 and Y3WM5* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *SBLK2N:* | *Y3WK7* |
| *SBLK2O:* | *Y3WK8 through Y3WL6* |
| *SBLK2P:* | *Y3WL8 through Y3WM5* |

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*

### CLP PO Action

*None.*

*CLP PO Attention*

None.

Sampling Issues

*None.*

## Additional Comments

*Matrix spike/matrix spike duplicate (MS/MSD) analysis was not performed by the laboratory. Consequently, matrix-specific accuracy and precision could not be evaluated.*

*This report was prepared in accordance with the following documents:*

- ESAT Region 9 Standard Operating Procedure 901, *Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages*;
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration,* SOM01.1, May 2005;
- *Modifications Updating SOM01.1 to SOM01.2,* Amended April 11, 2007; and
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*, July 2007.

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| *127.* | *Holding Time/Preservation* | *Yes* | |
| *128.* | *GC/MS Tune/GC Performance* | *Yes* | |
| *129.* | *Initial Calibration* | *Yes* | |
| *130.* | *Continuing Calibration Verification* | *Yes* | |
| *131.* | *Laboratory Blanks* | *Yes* | |
| *132.* | *Field Blanks* | *N/A* | |
| *133.* | *Deuterated Monitoring Compounds* | *Yes* | |
| *134.* | *Matrix Spike/Matrix Spike Duplicate* | *N/A* | |
| *135.* | *Laboratory Control Samples/Duplicate* | *N/A* | |
| *136.* | *Internal Standards* | *Yes* | |
| *137.* | *Compound Identification* | *Yes* | |
| 138. | COMPOUND QUANTITATION | YES | A |
| 139. | SYSTEM PERFORMANCE | YES | |
| *140.* | *Field Duplicate Sample Analysis* | *Yes* | |

*N/A = Not Applicable*

## III. Validity AND Comments

*A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- All detected results below the contract required quantitation limits

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

## *TABLE 1B*

## *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," January 2005.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

`

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300; Fax: (510) 412-2304.*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405051*

*DATE:* *April 23, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38274* |
| *SDG No.:* | *Y4N51* |
| *Laboratory:* | *Mitkem Laboratories (MITKEM)* |
| *Analysis:* | *1,4-Dioxane (Semivolatile)* |
| *Samples:* | *18 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *March 2 through 5, 2009* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

cc: Jennie Han-Liu, CLP PO USEPA Region 1

*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [ ] Attention [ ] Action*

*SAMPLING ISSUES: [ ] Yes [X] No*

*Case No.:* *38274*
*SDG No.:* *Y4N51*
*Site:* *Omega Chem OU2*
*Laboratory:* *Mitkem Laboratories*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *April 23, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y4N51 through Y4N53, Y4N55 through Y4N62, Y4N64 through Y4N66, Y4N68 through Y4N70, and Y4N73* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *1,4-Dioxane (Semivolatile)* |
| *SOW:* | *SOM01.2 and Modified Analysis 1679.2* |
| *Collection Date:* | *March 2 through 5, 2009* |
| *Sample Receipt Date:* | *March 3 through 6, 2009* |
| *Extraction Date:* | *March 5 and 6, 2009* |
| *Analysis Date:* | *March 9, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Not Provided* |
| *Equipment Blanks (EB):* | *Not Provided* |
| *Background Samples (BG):* | *Not Provided* |
| *Field Duplicates (D1):* | *Y4N60 and Y4N61* |

### 1aboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *SBLK4E:* | *Y4N51 through Y4N53, Y4N55 through Y4N61* |
| *SBLK4F:* | *Y4N62, Y4N64 through Y4N66, Y4N68 through Y4N70, Y4N73* |

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*

### CLP PO Action

*None.*

*CLP PO Attention*

None.

Sampling Issues

*None.*

## Additional Comments

*Matrix spike/matrix spike duplicate (MS/MSD) analysis was not required. Consequently, matrix-specific accuracy and precision could not be evaluated.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, July 2007.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 141. | *Holding Time/Preservation* | *Yes* | |
| 142. | *GC/MS Tune/GC Performance* | *Yes* | |
| 143. | *Initial Calibration* | *Yes* | |
| 144. | *Continuing Calibration Verification* | *Yes* | |
| 145. | *Laboratory Blanks* | *Yes* | |
| 146. | *Field Blanks* | *N/A* | |
| 147. | *Deuterated Monitoring Compounds* | *Yes* | |
| 148. | *Matrix Spike/Matrix Spike Duplicate* | *N/A* | |
| 149. | *Laboratory Control Samples/Duplicate* | *N/A* | |
| 150. | *Internal Standards* | *Yes* | |
| 151. | *Compound Identification* | *Yes* | |
| 152. | COMPOUND QUANTITATION | YES | A |
| 153. | SYSTEM PERFORMANCE | YES | |
| 154. | *Field Duplicate Sample Analysis* | *Yes* | |

*N/A = Not Applicable*

## III. Validity AND Comments

*A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- *All detected results below the contract required quantitation limits*

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

## *TABLE 1B*

## *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," January 2005.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

`

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300; Fax: (510) 412-2304.*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405083*

*DATE:* *October 27, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38845* |
| *SDG No.:* | *Y4ZA6* |
| *Laboratory:* | *DataChem Laboratories, Inc. (DATAC)* |
| *Analysis:* | *1,4-Dioxane (Semivolatile)* |
| *Samples:* | *20 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *September 1 through 3, 2009* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

cc: Carol Beard, CLP PO USEPA Region 6

*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*
*Data Validation Report - Tier 3*

*Case No.:* *38845*
*SDG No.:* *Y4ZA6*
*Site:* *Omega Chem OU2*
*Laboratory:* *DataChem Laboratories, Inc. (DATAC)*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *October 27, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y4ZA6 through Y4ZC5* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *1,4-Dioxane (Semivolatile)* |
| *SOW:* | *SOM01.2 and Modified Analysis 1679.2* |
| *Collection Date:* | *September 1 through 3, 2009* |
| *Sample Receipt Date:* | *September 3 and 4, 2009* |
| *Extraction Date:* | *September 8 and 14, 2009* |
| *Analysis Date:* | *September 14 and 15, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Y4ZA9 and Y4ZC5* |
| *Equipment Blanks (EB):* | *Not Provided* |
| *Background Samples (BG):* | *Not Provided* |
| *Field Duplicates (D1):* | *Y4ZB7 and Y4ZB8* |

### Laboratory QC

*Method Blanks & Associated Samples:*

| | |
|---|---|
| *SBLK03:* | *Y4ZA6 through Y4ZB0 and Y4ZB2 through Y4ZC5* |
| *SBLK06:* | *Y4ZB1* |

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*

### CLP PO Action

*None.*

*CLP PO Attention*

The result for 1,4-dioxane in sample Y4ZB1 is qualified as estimated (J) due to a holding time problem (see Comment B).

Sampling Issues

3. *Samples Y4ZA6 through Y4ZB6 were received by the laboratory with a cooler temperature of 9°C which exceeds the 4±2°C sample preservation criterion. Since the cooler temperature is below 20°C, no adverse effect on data quality is expected.*
4. *The laboratory indicated on sample log-in sheets that the cooler temperature indicator bottle was absent from four of the five coolers (refer to pages 672 through 676 in the data package).*

## Additional Comments

*Matrix spike/matrix spike duplicate (MS/MSD) analysis was not required. Consequently, matrix-specific accuracy and precision could not be evaluated.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 155. | *Holding Time/Preservation* | *No* | *B* |
| 156. | *GC/MS Tune/GC Performance* | *Yes* | |
| 157. | *Initial Calibration* | *Yes* | |
| 158. | *Continuing Calibration Verification* | *Yes* | |
| 159. | *Laboratory Blanks* | *Yes* | |
| 160. | *Field Blanks* | *Yes* | |
| 161. | *Deuterated Monitoring Compounds* | *Yes* | |
| 162. | *Matrix Spike/Matrix Spike Duplicate* | *N/A* | |
| 163. | *Laboratory Control Samples/Duplicate* | *N/A* | |
| 164. | *Internal Standards* | *Yes* | |
| 165. | *Compound Identification* | *Yes* | |
| 166. | COMPOUND QUANTITATION | YES | A |
| 167. | SYSTEM PERFORMANCE | YES | |

*168. Field Duplicate Sample Analysis* *Yes*

*N/A = Not Applicable*

## III. Validity AND Comments

*A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- *All detected results below the contract required quantitation limits*

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

*B. The result for the following analyte is qualified as estimated due to missed technical holding time and is flagged "J" in Table 1A.*

- *1,4-Dioxane in sample Y4ZB1*

*The extraction of sample Y4ZB1 exceeded the 7-day 40 CFR 136 (Clean Water Act) technical holding time for water samples as shown below.*

| *Sample* | *Date Collected* | *Date Extracted* | *No. of Days Exceeded* |
|---|---|---|---|
| *Y4ZB1* | *09/02/09* | *09/14/09* | *5* |

*Since the result is nondetected, a false negative may exist.*

## *TABLE 1B*

## *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*Appendix G-4*

# Semivolatiles

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300 Fax: (510) 412-2304*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405090 Amendment 2*

*DATE:* *December 23, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38940* |
| *SDG No.:* | *Y5129* |
| *Laboratory:* | *KAP Technologies, Inc. (KAP)* |
| *Analysis:* | *Semivolatiles* |
| *Samples:* | *2 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *September 15, 2009* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

*cc:* *Ray Flores, CLP PO USEPA Region 6*
*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [X] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*

*Case No.:* *38940*
*SDG No.:* *Y5129*
*Site:* *Omega Chem OU2*
*Laboratory:* *KAP Technologies, Inc. (KAP)*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *December 23, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y5129 and Y5130* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *Semivolatiles* |
| *SOW:* | *SOM01.2 and Modification Reference No. 1564.3* |
| *Collection Date:* | *September 15, 2009* |
| *Sample Receipt Date:* | *September 17, 2009* |
| *Extraction Date:* | *September 20, 2009* |
| *Analysis Date:* | *September 29, 2009 and October 6, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Not provided* |
| *Equipment Blanks (EB):* | *Not provided* |
| *Background Samples (BG):* | *Not provided* |
| *Field Duplicates (D1):* | *Not provided* |

### Laboratory QC

*Method Blanks & Associated Samples:*
*SBLK27:* *Y5129, Y5130*

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*

### CLP PO Action

*Nondetected results for 4-chloroaniline, hexachlorocyclopentadiene, and 3,3'-dichlorobenzidine in samples Y5129 and Y5130 and for 2-nitroaniline, 3-nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, and 4-nitroaniline in sample Y5129 are qualified as rejected (R) due to very low deuterated monitoring compound (DMC) recoveries (<10%) (see Comment A).*

*CLP PO Attention*

1. *Results for some analytes are qualified as estimated (J) due to calibration problems (see Comments C and D).*

2. *Results for some analytes in sample Y5130 are qualified as estimated (J) due to high internal standard (IS) areas (see Comment E).Sampling Issues*

3. *The sampler signature is missing on the traffic report and chain of custody record (TR/COC) (refer to page 4 in the data package).*

4. *The matrix spike/matrix spike duplicate (MS/MSD) analysis was not required. Consequently, the matrix-specific accuracy and precision could not be evaluated.*

### Additional Comments

*Tentatively identified compounds (TICs) were found in samples Y5129 and Y5130 (see attached Form 1Ks).*

*The laboratory performed manual integrations on calibrations and samples due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | *Parameter* | *Acceptable* | *Comment* |
|---|---|---|---|
| 169. | *Holding Time/Preservation* | *Yes* | |
| 170. | *GC/MS Tune/GC Performance* | *Yes* | |
| 171. | *Initial Calibration* | *No* | *C* |
| 172. | *Continuing Calibration Verification* | *No* | *D* |

| | | | |
|---|---|---|---|
| *173.* | *Laboratory Blanks* | *Yes* | |
| *174.* | *Field Blanks* | *N/A* | |
| *175.* | *Deuterated Monitoring Compounds* | *No* | *A* |
| *176.* | *Matrix Spike/Matrix Spike Duplicate* | *N/A* | |
| *177.* | *Laboratory Control Sample/Duplicate* | *N/A* | |
| *178.* | *Internal Standards* | *No* | *E* |
| *179.* | *Compound Identification* | *Yes* | |
| 180. | COMPOUND QUANTITATION | YES | B |
| 181. | SYSTEM PERFORMANCE | YES | |
| *182.* | *Field Duplicate Sample Analysis* | *N/A* | |

*N/A = Not Applicable*

## III. Validity AND Comments

*A. Nondetected results for the following analytes are qualified as rejected due to very low DMC recoveries and are flagged "R" in Table 1A.*

*{4-Chloroaniline-d4}*

- *4-Chloroaniline, hexachlorocyclopentadiene, and 3,3'-dichlorobenzidine in samples Y5129 and Y5130*

*{4-Nitrophenol-d4}*

- *2-Nitroaniline, 3-nitroaniline, 2,4-dinitrophenol, 4-nitrophenol, and 4-nitroaniline in sample Y5129*

*Recoveries of 3% and 2% were reported for DMC 4-chloroaniline-d4 in samples Y5129 and Y5130, respectively. A recovery of 2% was reported for DMC 4-nitrophenol-d4 in sample Y5129. Samples were not reextracted. The extract for sample Y5130 was reanalyzed with similar results (4-chloroaniline-d4 recovery = 1%). Results from the original analysis of sample Y5130 are presented in Table 1A since the reanalysis results are similar.*

*Surrogates (e.g., deuterated monitoring compounds (DMCs)) are organic compounds which are similar to the target analytes in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples. All samples are spiked with DMCs prior to purging. DMCs provide information about both the laboratory performance on individual samples and the possible effects of the sample matrix on the analytical results.*

*B. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.*

- *All detected results below the contract required quantitation limits*

*Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.*

C. *Results for the following analytes are qualified as estimated due to large percent relative standard deviations (%RSDs) in initial calibration and are flagged "J" in Table 1A.*

- *2,4-Dinitrotoluene and benzo(k)fluoranthene in samples Y5129 and Y5130*

*%RSDs of 31.0% and 20.1% were reported for 2,4-dinitrotoluene and benzo(k)fluoranthene, respectively, in the 09/28/09 initial calibration. These values exceeded the ≤20.0% validation criterion.*

D. *Results for the following analyte are qualified as estimated due to a large percent difference (%D) in continuing calibration verification (CCV) and are flagged "J" in Table 1A.*

- *Pentachlorophenol in Y5129 and Y5130*

*A %D of -31.5% was reported for pentachlorophenol in the 09/29/09 06:38 CCV. This value exceeded the ±25.0% validation criterion.*

*The continuing calibration checks the instrument performance daily and produces the relative response factors (RRFs) for target analytes that are used for quantitation.*

E. Results for the following analytes are qualified as estimated due to high IS areas and are flagged "J" in Table 1A.

*{Chrysene-d12}*

- *Pyrene, butylbenzylphthalate, 3,3'-dichlorobenzidine, benzo(a)anthracene, bis(2-ethylhexyl)phthalate and chrysene in sample Y5130*

*{Perylene-d12}*

- *Di-n-octylphthalate, benzo(a)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene in sample Y5130*

*IS areas outside QC limits are shown below.*

| *Sample* | *Internal Standard* | *Area* | *QC Limit* |
|---|---|---|---|
| *Y5130* | *Chryene-d12* | *46213004* | *10756140-21512280* |
| *Y5130* | *Perylene-d12* | *37858620* | *8365862-16731725* |
| *Y5130RE* | *Chryene-d12* | *46354342* | *10756140-21512280* |
| *Y5130RE* | *Perylene-d12* | *38928795* | *8365862-16731725* |

*Qualified results are considered quantitatively questionable. Sample Y5130 was not reextracted. The extract was reanalyzed with similar results. Results from the original analysis of sample Y5130 are presented in Table 1A since the reanalysis results are similar.*

*Data users should note that the result for 3,3'-dichlorobenzidine in sample Y5130 has been qualified as rejected (see Comment A).*

*Internal standards, introduced into every calibration standard, blank, sample, and QC sample, monitor changes in analyte response due to matrix effects and fluctuations in instrument sensitivity throughout the analytical sequence. Internal standards are used to quantitate the concentration of target analytes and surrogate standards.*

## TABLE 1B

### *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*

*Appendix G-5*

# Semivolatiles Selective Ion Monitoring (SIM)

***ICF international / Laboratory Data Consultants***
*Environmental Services Assistance Team, Region 9*
*1337 South 46th Street, Building 201, Richmond, CA 94804-4698*
*Phone: (510) 412-2300 Fax: (510) 412-2304*

*MEMORANDUM*

*TO:* *Lynda Deschambault, Remedial Project Manager*
*Site Cleanup Section 1, SFD-7-1*

*THROUGH:* *Rose Fong, ESAT Task Order Manager (TOM)*
*Quality Assurance (QA) Program, MTS-3*

*FROM:* *Doug Lindelof, Data Review Task Manager*
*Region 9 Environmental Services Assistance Team (ESAT)*

*ESAT Contract No.: EP-W-06-041*
*Technical Direction Form No.: 00405090 Amendment 2*

*DATE:* *December 14, 2009*

*SUBJECT:* *Review of Analytical Data, Tier 3*

*Attached are comments resulting from ESAT Region 9 review of the following analytical data:*

| | |
|---|---|
| *Site:* | *Omega Chem OU2* |
| *Site Account No.:* | *09 BC QB02* |
| *CERCLIS ID NO.:* | *CAD042245001* |
| *Case No.:* | *38940* |
| *SDG No.:* | *Y5129* |
| *Laboratory:* | *KAP Technologies, Inc. (KAP)* |
| *Analysis:* | *Semivolatiles Selective Ion Monitoring (SIM)* |
| *Samples:* | *2 Ground Water Samples (see Case Summary)* |
| *Collection Date:* | *September 15, 2009* |
| *Reviewer:* | *Santiago Lee, ESAT/Laboratory Data Consultants (LDC)* |

*This report has been reviewed by the EPA TOM for the ESAT contract, whose signature appears above.*

*If there are any questions, please contact Rose Fong (QA Program/EPA) at (415) 972-3812.*

*Attachment*

*cc:* *Ray Flores, CLP PO USEPA Region 6*
*Steve Remaley, CLP PO USEPA Region 9*

*CLP PO: [X] Attention [ ] Action*

*SAMPLING ISSUES: [X] Yes [ ] No*

*Case No.:* *38940*
*SDG No.:* *Y5129*
*Site:* *Omega Chem OU2*
*Laboratory:* *KAP Technologies, Inc. (KAP)*
*Reviewer:* *Santiago Lee, ESAT/LDC*
*Date:* *December 14, 2009*

## I. Case Summary

### Sample Information

| | |
|---|---|
| *Samples:* | *Y5129 and Y5130* |
| *Concentration and Matrix:* | *Low Concentration Water* |
| *Analysis:* | *Semivolatiles SIM* |
| *SOW:* | *SOM01.2* |
| *Collection Date:* | *September 15, 2009* |
| *Sample Receipt Date:* | *September 17, 2009* |
| *Extraction Date:* | *September 20, 2009* |
| *Analysis Date:* | *October 6, 2009* |

### Field QC

| | |
|---|---|
| *Field Blanks (FB):* | *Not provided* |
| *Equipment Blanks (EB):* | *Not provided* |
| *Background Samples (BG):* | *Not provided* |
| *Field Duplicates (D1):* | *Not provided* |

### Laboratory QC

*Method Blanks & Associated Samples:*
*SBLK27:* *Y5129 and Y5130*

*Tables*

*1A: Analytical Results with Qualifications*
*1B: Data Qualifier Definitions for Organic Data Review*

### CLP PO Action

*None.*

*CLP PO Attention*

Results for pentachlorophenol are qualified as estimated (J) due to low relative response factors (RRFs) in initial calibration and continuing calibration verifications (CCVs) (see Comment A).

Sampling Issues

1. *The sampler signature is missing on the traffic report and chain of custody record (TR/COC) (refer to page 4 in the data package).*

2. *No sample was designated for "laboratory QC" on the TR/COC and the matrix spike/matrix spike duplicate (MS/MSD) analysis was not performed. Consequently, the matrix-specific accuracy and precision could not be evaluated.*

### Additional Comments

*The laboratory performed manual integrations on calibrations due to incorrect auto integration. Manual integrations were reviewed and found to be satisfactory and in compliance with proper integration techniques.*

*This report was prepared in accordance with the following documents:*

- *ESAT Region 9 Standard Operating Procedure 901, Guidelines for Data Review of Contract Laboratory Program Analytical Services Volatile and Semivolatile Data Packages;*
- *USEPA Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration, SOM01.1, May 2005;*
- *Modifications Updating SOM01.1 to SOM01.2, Amended April 11, 2007; and*
- *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008.*

## II. Validation Summary

*The data were evaluated based on the following parameters:*

| | Parameter | Acceptable | Comment |
|---|---|---|---|
| 183. | *Holding Time/Preservation* | *Yes* | |
| 184. | *GC/MS Tune/GC Performance* | *Yes* | |
| 185. | *Initial Calibration* | *No* | *A* |
| 186. | *Continuing Calibration Verification* | *No* | *A* |
| 187. | *Laboratory Blanks* | *Yes* | |

| | | |
|---|---|---|
| *188.* | *Field Blanks* | *N/A* |
| *189.* | *Deuterated Monitoring Compounds* | *Yes* |
| *190.* | *Matrix Spike/Matrix Spike Duplicate* | *N/A* |
| *191.* | *Laboratory Control Sample/Duplicate* | *N/A* |
| *192.* | *Internal Standards* | *Yes* |
| *193.* | *Compound Identification* | *Yes* |
| 194. | COMPOUND QUANTITATION | YES |
| 195. | SYSTEM PERFORMANCE | YES |
| *196.* | *Field Duplicate Sample Analysis* | *N/A* |

*N/A = Not Applicable*

## III. Validity AND Comments

A. Results for the following analyte are qualified as estimated due to low RRFs in initial calibration and CCVs and are flagged "J" in Table 1A.

- *Pentachlorophenol in samples Y5129 and Y5130 and method blank SBLK27*

*An RRF of 0.0338 was reported for pentachlorophenol in the initial calibration. RRFs of 0.0390 and 0.0370 were reported for pentachlorophenol in 10/06/09 16:11 and 18:53 CCVs, respectively. These values are below the 0.050 validation criterion. Since qualified results are nondetected, false negatives may exist.*

*The RRF evaluates instrument sensitivity and is used in the quantitation of target analytes.*

## TABLE 1B

### *DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW*

*The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.*

*U* — *The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted Contract Required Quantitation Limit (CRQL) for sample and method.*

*L* — *Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.*

*J* — *The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the CRQL).*

*NJ* — *The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.*

*UJ* — *The analyte was not detected at a level greater than or equal to the adjusted CRQL. However, the reported adjusted CRQL is approximate and may be inaccurate or imprecise.*

*R* — *The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.*